S Energy Research
333.805 Information System
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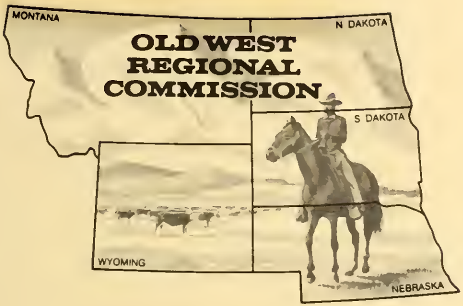
V.5, No.1



ENERGY RESEARCH INFORMATION SYSTEM

A Program of:

The Old West Regional Commission
Billings, Montana

Projects Report

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Vol. 5, No. 1
July 1980

Project Nos. 00001465 through 00001574

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ENERGY RESEARCH INFORMATION SYSTEM

PROJECTS REPORT

VOLUME 5, NUMBER 1

OLD WEST REGIONAL COMMISSION

BILLINGS, MONTANA

July 1980

PREPARED BY

COMPILERS: JUDITH JOHNSON AND LAURA SCHILLINGER

OLD WEST REGIONAL COMMISSION

HEDDEN-EMPIRE BUILDING, SUITE 228

BILLINGS, MONTANA 59101

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INTRODUCTION

The Old West Regional Commission is a Federal-State partnership designed to address regional economic problems and stimulate orderly economic growth in the states of Montana, Nebraska, North Dakota, South Dakota and Wyoming. Established in 1972 under the Public Works and Economic Development Act of 1965, it is one of eight such commissions in the United States.

The Energy Research Information System (ERIS) is a service administered by the Old West Regional Commission in response to the need for current information on research activities in the region's rapidly growing and changing field of energy. The purpose of ERIS is to compile and make available to the users in the Region an up-to-date inventory of ongoing and recently completed energy-related research projects.

The term "energy-related" covers a broad spectrum of activities and encompasses a large volume of research. Nonetheless, ERIS attempts to report energy-related research projects in as comprehensive a manner as possible. The subject areas covered are: reclamation, energy conversion, and land use research, socioeconomic impact and renewable energy resources studies, as well as programs related to energy development which do not necessarily involve research.

By facilitating communication among researchers and allowing public and private sector decision-makers access to Regional energy research, ERIS aims to improve information exchanges among energy research users. The system can be used as an aid in conducting research, avoiding duplication of effort, and pinpointing areas of additional research need.

The geographical focus of ERIS is the Old West Region - Montana, Nebraska, North Dakota, South Dakota and Wyoming. However, peripheral states or nationwide efforts are covered as they are related to regional work.

The compilation of energy research projects in the ERIS reports has been accomplished by combining ERIS's own information-gathering efforts with those of other clearinghouses--most notably, Oak Ridge National Laboratory, the Smithsonian Science Information Exchange, the Montana Energy Office, the North Dakota Regional Environmental Assessment Program, the University of Wyoming, Rocky Mountain Institute on Energy and Environment and other energy agencies in the Old West Region.

Use of the Energy Research Information System

ERIS Projects Reports

ERIS information is stored in a computerized data base. As the data base grows, periodic reports are printed which list the latest contents of the data base. The first such report was issued in November, 1975.

Access to ERIS is available through subject oriented sections and through the indexes located at the end of the listings. These indexes are: Location, Personal Name, Organization, and Subject Keyword. Instructions for the use of the indexes precede each section.

Please note that ERIS provides a listing but not the actual document referred to in the publication section of each abstract. Document delivery is best accomplished by contacting the local library system or by contacting the investigator or sponsor of any particular project.

Computer Search Service

The holdings of ERIS are computerized, allowing for flexibility in conducting special searches of the data base. The computer search service is offered as a complement to the ERIS Projects Reports. If your inquiry concerning energy research cannot be answered by manual use of the reports, contact a member of the ERIS staff, and request that a special search be conducted.

ERIS is part of the Research in Progress File (RIP) and the Energy R & D Project File (ERD) of the U. S. Department of Energy's RECON Information Retrieval System. Designated RECON users may also access ERIS through their own terminals.

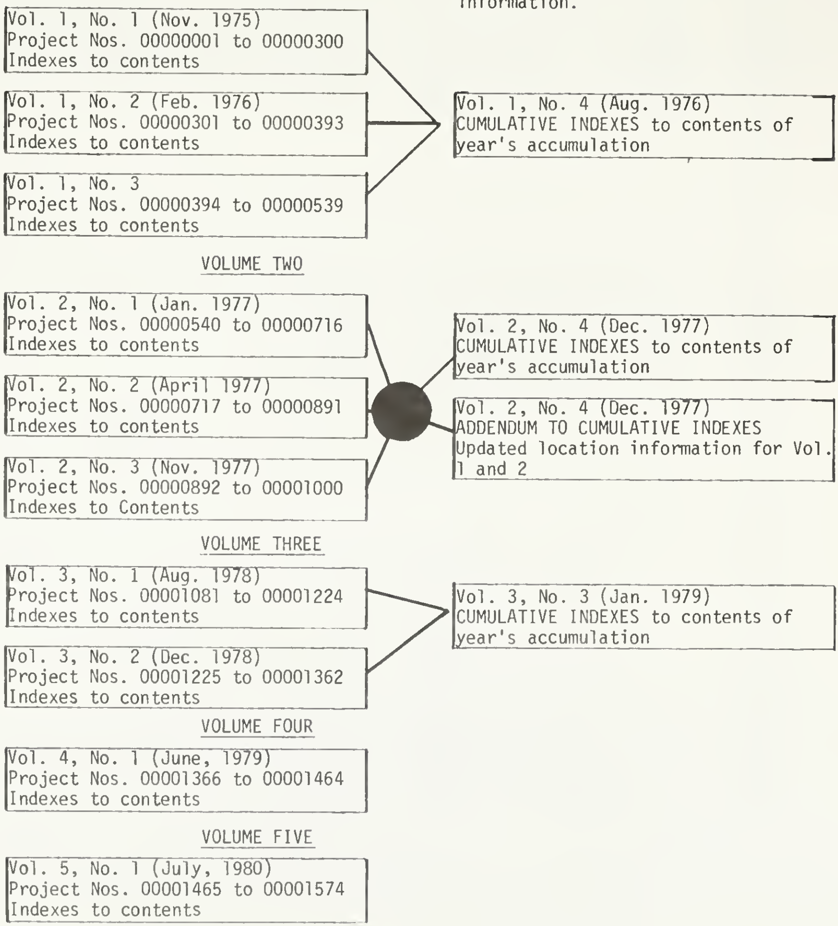
* * * * * * * * * * * * * * * * *

Please direct your inquiries to:

ERIS
Old West Regional Commission
Suite 228 - Hedden-Empire Building
Billings, Montana 59101
406/657-6665 (commercial) or 585-6665 (FTS)

How ERIS is organized

- PROJECTS REPORTS (formerly called Quarterly Reports) contain descriptions of energy research in the Old West Region.
- Each REPORT is indexed according to Location, Name, Organization, and Subject.
- CUMULATIVE INDEXES are provided once a year to incorporate previous indexes of the year's PROJECTS REPORTS under one cover.
- Project descriptions are not included with the Cumulative Index.
- CUMULATIVE INDEXES and the year's PROJECTS REPORTS comprise a set of information.



VOLUME ONE

Vol. 1, No. 1 (Nov. 1975)
Project Nos. 00000001 to 00000300
Indexes to contents

Vol. 1, No. 2 (Feb. 1976)
Project Nos. 00000301 to 00000393
Indexes to contents

Vol. 1, No. 3
Project Nos. 00000394 to 00000539
Indexes to contents

Vol. 1, No. 4 (Aug. 1976)
CUMULATIVE INDEXES to contents of year's accumulation

VOLUME TWO

Vol. 2, No. 1 (Jan. 1977)
Project Nos. 00000540 to 00000716
Indexes to contents

Vol. 2, No. 2 (April 1977)
Project Nos. 00000717 to 00000891
Indexes to contents

Vol. 2, No. 3 (Nov. 1977)
Project Nos. 00000892 to 00001000
Indexes to Contents

Vol. 2, No. 4 (Dec. 1977)
CUMULATIVE INDEXES to contents of year's accumulation

Vol. 2, No. 4 (Dec. 1977)
ADDENDUM TO CUMULATIVE INDEXES
Updated location information for Vol. 1 and 2

VOLUME THREE

Vol. 3, No. 1 (Aug. 1978)
Project Nos. 00001081 to 00001224
Indexes to contents

Vol. 3, No. 2 (Dec. 1978)
Project Nos. 00001225 to 00001362
Indexes to contents

Vol. 3, No. 3 (Jan. 1979)
CUMULATIVE INDEXES to contents of year's accumulation

VOLUME FOUR

Vol. 4, No. 1 (June, 1979)
Project Nos. 00001366 to 00001464
Indexes to contents

VOLUME FIVE

Vol. 5, No. 1 (July, 1980)
Project Nos. 00001465 to 00001574
Indexes to contents

ERIS Projects Reports are available from the ERIS staff or from National Technical Information Service (NTIS), U. S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161.

	NTIS Accession No.	Price Codes Paper Copy	 Microfiche
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Vol. 1, No. 1 (Nov. 1975)	PB276 851/AS	A11	A01
Vol. 1, No. 2 (Feb. 1976)	PB276 852/AS	A07	A01
Vol. 1, No. 3 (May 1976)	PB276 853/AS	A06	A01
Vol. 1, No. 4 (Aug. 1976)	PB276 854/AS	A05	A01
Vol. 2 - Entire Set, 542 pages	PB276 929-Set	E12	--
Vol. 2, No. 1 (Jan. 1977)	PB276 930/AS	A08	A01
Vol. 2, No. 2 (April 1977)	PB276 931/AS	A07	A01
Vol. 2, No. 3 (Nov. 1977)	PB276 932/AS	A08	A01
Vol. 2, No. 4 (Dec. 1977)	PB276 933/AS	A06	A01
Vol. 3, No. 1 (Aug. 1978)	PB294 342/AS	A05	A01
Vol. 3, No. 2 (Dec. 1978)	PB294 951/AS	A06	A01
Vol. 3, No. 3 (Jan. 1979)	PB294 952/AS	A05	A01
Vol. 4, No. 1 (June 1979)	PB300 338/AS	A05	A01

REPORTING FORM
ENERGY RESEARCH INFORMATION SYSTEM
Old West Regional Commission

INSTRUCTIONS: Please complete the relevant categories of the Reporting Form for each energy-related project currently being conducted or recently completed by your organization in the States of the Old West Region. If an umbrella project covers several separate studies, fill out a form for each one, as well as for the umbrella project. If you want any of the information you provide to be omitted from ERIS publications, make a note of this in Category 17, "Special Instructions for Proprietary Information."

In order to assist us in assigning keywords for computer access to your research information, we ask that you circle the most descriptive words and phrases of the Title and Abstract. If necessary, add additional terms of your own choosing.

If you are amending previously submitted information, please note this on the Reporting Form.

PLEASE RETURN COMPLETED REPORTING FORM(s) TO: ERIS, OLD WEST REGIONAL COMMISSION, 228 HEDDEN-EMPIRE BLDG., BILLINGS, MT 59101. PHONE: (406) 657-6665 (Commercial) or 585-6665 (FTS).

1. Date prepared ________________ Respondent ________________

   Check one: ________ Original Information ________ Amendment to ERIS Project No. ________

2. **PROJECT/PROGRAM TITLE** (circle keywords) ________________

3. **PROJECT NUMBER** (descriptive no. used by your organization) ________________

4. **PRINCIPAL INVESTIGATOR** (include organization name and address)

   INVESTIGATOR ________________ PHONE NO. ________

   ORGANIZATION ________________

   ADDRESS ________________

   OTHER INVESTIGATORS:

5. **RESEARCH INSTITUTION** (institution/organization where or through which research is performed if different than 4 above)

   ORGANIZATION ________________ PHONE NO. ________

   ADDRESS ________________

6. **COOPERATOR(S)** (organization(s) which provides time and/or resources toward the project but does not conduct, supervise, or fund the research)

ORGANIZATION ______________________________

PROJECT MONITOR ______________________ PHONE NO.__________

ADDRESS ______________________________

____

7. **PRIMARY SPONSOR** (organization which provides funds)

ORGANIZATION ______________________________

PROJECT MONITOR ______________________ PHONE NO.__________

ADDRESS ______________________________

____

8. **OTHER SPONSORS** (provide names of organizations which provide secondary funds)

____

____

____

9-10. **FUNDING AMOUNTS**

Type of accounting period:________Calendar year________Fiscal Year

Enter the **TOTALS** from each sponsor in the appropriate blanks. If the breakdown is known, enter the yearly amounts in the appropriate blanks.

Organizations from 7 and 8 above	197____	198____	198____	Total
(Primary) ________	$ ________	$ ________	$ ________	$ ________
(Other) ________	$ ________	$ ________	$ ________	$ ________
________	$ ________	$ ________	$ ________	$ ________
________	$ ________	$ ________	$ ________	$ ________
Total Funding				$ ________

11. **TIME FRAME:** Starting Date______________ Ending Date______________
mo. day yr. mo. day yr.

12. **ACTUAL COMPLETION DATE** (leave blank if not completed) ______________
mo. day yr.

13. **LOCATION:** States and Counties; other location information — Region, River Basin, Cities, Township/Range/Section, etc.

STATES AND COUNTIES ______________

OTHER LOCATION INFORMATION ______________

14. **ABSTRACT:** Problem, Objectives, and Approach (in free form, 100-200 words)
PLEASE CIRCLE KEYWORDS AND PHRASES. Add other descriptors if necessary.

15. **REPORTS AND PUBLICATIONS** (title, authors, report number, date, issuing agency)

16. **AVAILABILITY OF REPORTS AND PUBLICATIONS** (indicate organization and mailing address where reports can be obtained; also indicate cost and order number if appropriate)

17. **SPECIAL INSTRUCTIONS FOR PROPRIETARY INFORMATION** (enter category number and information which you desire to be omitted from published material)

18. **A. TYPE OF STUDY OR PROGRAM**
(check all that apply)

1) ☐ Basic research

2) ☐ Applied research

3) ☐ Demonstration project or program not involving research (e.g., a community technical assistance program)

4) ☐ Environmental Impact Statement

5) ☐ Other______________________

B. TYPE OF DATA COLLECTED
(check all that apply)

1) ☐ Primary data sources
   a. ☐ Field study
   b. ☐ Lab. study
   c. ☐ Both of the above

2) ☐ Secondary data sources

3) ☐ Both 1 and 2 above

C. **PROJECT AFFILIATION** (check one of the following)

1) ☐ The study described on this Reporting Form is an umbrella project or program. It encompasses two (2) or more separate studies which are subcontracted and/or of differing subject content. Please provide Reporting Forms for the separate projects or incorporate them onto this Reporting Form.

2) ☐ The study described on this Reporting Form is a part of an umbrella project or program. Please provide umbrella project name and overall coordinating organization below.

____

____

3) ☐ The study is a separate project or program in and of itself.

THANK YOU FOR COMPLETING THIS REPORTING FORM.

r 4/79

ENERGY RESEARCH INFORMATION SYSTEM

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1.1 GENERAL

00001465

PROJECT TITLE
ESTABLISHMENT OF A COAL LABORATORY
SOURCE NUMBER
G&C 26000311
INVESTIGATOR(S)
DR. DAVE GIBSON
RESEARCH INSTITUTION
MONTANA STATE UNIV.
BOZEMAN, MT 59715
PRIMARY SPONSOR
OLD WEST REGIONAL COMMISSION
PRIMARY FUNDING AMOUNT
8,453
TIME FRAME
MAY 1979 TO OCT. 1979
LOCATION
MT - ND - SD - NE - WY
ABSTRACT

THE SPECIFIC OBJECTIVES ARE: 1)TO DEFINE THE STRUCTURE OF A UNIVERSITY COAL LABORATORY SUCH THAT THE INTENT OF TITLE VIII IS FULFILLED BY THE GROUP OF UNIVERSITIES REPRESENTING THE OLD WEST REGION; 2) TO IDENTIFY COAL RESEARCH PROBLEMS OF NATIONAL OR REGIONAL IMPORTANCE WHICH ARE PARTICULARLY AND PERHAPS UNIQUELY SUITED FOR STUDY IN THE OLD WEST COAL LABORATORY RATHER THAN IN LABORATORIES ELSEWHERE IN THE COUNTRY; 3) TO INVENTORY THE REGIONAL UNIVERSITY RESEARCH AND EDUCATIONAL CAPABILITY AS WELL AS THAT OF OTHER STATE OR REGIONAL INSTITUTIONS AND AGENCIES INVOLVED IN EDUCATIONAL, RESEARCH OR POLICY ACTIVITIES RELATED TO COAL; AND 4) TO MATCH THE REQUIREMENTS OF THE COAL LABORATORY (AS IDENTIFIED IN 1 AND 2 ABOVE) WITH THE REGIONAL CAPABILITIES (AS IDENTIFIED IN 3) IN ORDER TO ANSWER RESEARCH QUESTIONS. IT WAS DETERMINED THAT A PROPOSAL SHOULD BE PREPARED FOR THE ESTABLISHMENT OF A COAL LABORATORY.

1.2 RECLAMATION

00001466

PROJECT TITLE
JIM BRIDGER PROJECT

SOURCE NUMBER
65910-32

INVESTIGATOR(S)
EDWIN D. PENTECOST
J. D. TAYLOR
WILLIAM A. MASTER
R. MICHAEL MILLER
DENNIS CLEAVES
A. J. DVORAK

RESEARCH INSTITUTION
U.S. DEPT OF ENERGY, ARGONNE NATIONAL LAB.
BLDG. 11A, ARGONNE, IL 60439

COOPERATOR
UNIV. OF WYOMING
NERCO, INC.

PRIMARY SPONSOR
U.S. DEPT OF ENERGY, OFFICE OF ENV.
WASHINGTON, D.C. 20545

PRIMARY FUNDING AMOUNT
138,000

TIME FRAME
MAY 1976 TO 9999

LOCATION
WY - SWEETWATER CO.; JIM BRIDGER MINE

ABSTRACT

A COMPREHENSIVE FIELD AND LABORATORY PROJECT WAS BEGUN IN 1975 TO EXAMINE TECHNIQUES FOR REVEGETATING MINE SPOILS, INCREASING MOISTURE AVAILABILITY.
EVALUATION OF THE IMPACTS OF RECOLONIZATION BY WILDLIFE SPECIES, AND IDENTIFYING AND AMELIORATING THE IMPACTS OF TOPSOIL SEGREGATION, STORAGE, AND REAPPLICATION TO SOIL MICROBIOTA.
SEVEN SUBPROJECTS ARE BEING CONDUCTED USING THE SAME TREATMENT AREAS TO ENABLE BETTER COMPARISONS OF THE DATA TO BE MADE. THE SEVEN SUBPROJECTS ARE:

1. SOIL MOISTURE AND EROSION POTENTIAL OF MINES SPOILS AS INFLUENCEB BY SURFACE TREATMENT.
2. SNOWFENCE SYSTEMS FOR INCREASED SEEDLING ESTABLISHMENT ON STRIP-MINED SPOILS.
3. TOPSOIL REAPPLICATION STUDIES.
4. AVAILABLE NATIVE SEED IN NATIVE AND STOCKPILED TOPSOILS.
5. BELOW-GROUND ECOSYSTEMS ANALYSIS.
6. REVEGETATION STUDIES.

PUBLICATIONS ADDRESS
AVAILABLE FROM NTIS OR FROM LAND RECLAMATION PROGRAM,
BLDG. 8, ARGONNE NATIONAL LAB., ARGONNE, IL 60439.

00001467

PROJECT TITLE
SURFACE MINING AND LAND RECLAMATION INFORMATION SYSTEM - SUMLARIS

SOURCE NUMBER
8F416-00-190

INVESTIGATOR(S)
DONALD R. MACDONALD
ROBERT BECK

RESEARCH INSTITUTION
U.S. DEPT. OF ENERGY, ARGONNE NATIONAL LAB.
LAND RECLAMATION PROGRAM - BLDG. 8, 9700 SOUTH CASS AVE.
ARGONNE, IL 60439

PRIMARY SPONSOR
U.S. DEPT. OF ENERGY, OFFICE OF ENV.
OFFICE OF HEALTH AND ENVIRONMENTAL RESEARCH
WASHINGTON, D.C. 20545

SECONDARY SPONSOR
U.S. DEPT. OF INTERIOR, OFFICE OF SURFACE MINING
REGION III, INDIANAPOLIS, IN

PRIMARY FUNDING AMOUNT
35,000

SECONDARY FUNDING AMOUNT
94,000

TIME FRAME
OCT. 1978 TO SEPT. 1979

LOCATION
WY- AL - IN - OH

ABSTRACT

IN 1977, THE SURFACE MINING AND LAND RECLAMATION INFORMATION SYSTEM WAS BEGUN TO DEVELOP AND MAINTAIN A NATIONAL RECLAMATION INFORMATION SYSTEM. THE BASIS FOR THE DATA WAS THE DETAILED MINING AND RECLAMATION DATA EXISTING IN STATE FILES.
A THREE STATE STUDY DEFINED PROCEDURES FOR DEVELOPING SUMLARIS. THE STATES CHOSEN FOR THIS REPRESENTED EACH OF THE MAJOR U.S. COAL REGIONS: ALABAMA (APPALACHIAN), INDIANA (MIDWESTERN), AND WYOMING (WESTERN). THREE DATA BASES WERE SUCCESSFULLY DEVELOPED USING DATA COLLECTED BY AGENCIES IN THESE STATES. AGRONNE EXPANDED SUMLARIS IN 1978, UNDER SPONSORSHIP OF OSM, TO INCLUDE ILLINOIS, INDIANA, AND OHIO, THE THREE STATES OF OSM'S REGION III. THIS DATA BASE WILL BE USED TO DEMONSTRATE THE PROCEDURES BY WHICH REGIONAL ASSESSMENTS OF MINING AND RECLAMATION ACTIVITIES CAN BE MADE AND TO ASSIST IN THE ENFORCEMENT OF THE SURFACE MINING CONTROL AND RECLAMATION ACT.
TYPES OF DATA IN THE SYSTEM ARE: TYPES OF MINING OPERATION (E.G., AREA, CONTOUR, AUGUR); ACRES DISTURBED AND RECLAIMED; TOPSOIL AND OVERBURDEN CHARACTERISTICS; COAL SEAM THICKNESS; IDENTIFICATION OF COAL COMPANIES; DISTRIBUTION OF MINING ACTIVITY; MINE INSPECTION REPORTS; REVEGETATION METHODS; SOCIAL AND ECONOMIC IMPACTS

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OF LAND USE CHANGES.
THIS IS A SUBPROJECT OF ERIS PROJECT NO. 000073.
VOL. 1, NO. 1.

REPORTS AND PUBLICATIONS
ROBERT L. BECK AND RONALD R. MACDONALD. SURFACE MINING AND LAND RECLAMATION INFORMATION SYSTEM: AUTOMATING AND QUERYING STATE-COLLECTED RECLAMATION DATA.
ROBERT L. BECK, LINDA S. FEHR, AND RONALD R. MACDONALD. SURFACE MINING AND LAND RECLAMATION SYSTEM: INDIANA TECHNICAL REPORT.

PUBLICATIONS ADDRESS
THE REPORTS CAN BE OBTAINED FROM THE ENERGY AND ENVIRONMENTAL SYSTEMS DIVISION OF U.S. DEPT. OF ENERGY, ARGONNE NATIONAL LAB.

00001468
--------

PROJECT TITLE
INVESTIGATION OF THE SUBSIDENCE AND SURFACE COLLAPSE FEATURES IN RECLAIMED SURFACE COAL MINE SPOILS

SOURCE NUMBER
00955

INVESTIGATOR(S)
GERALD GROENEWOLD

RESEARCH INSTITUTION
NORTH DAKOTA GEOLOGICAL SURVEY
UNIVERSITY STATION, GRAND FORKS, ND 58202

PRIMARY SPONSOR
U.S. BUREAU OF MINES
DENVER MINING RESEARCH CENTER
BLDG. 20, DENVER FEDERAL CENTER, DENVER, CO 80225

SECONDARY SPONSOR
NORTH DAKOTA GEOLOGICAL SURVEY

PRIMARY FUNDING AMOUNT
145,000.

SECONDARY FUNDING AMOUNT
11,000

TIME FRAME
APRIL 1979 TO APRIL 1981

LOCATION
ND - MERCER CO: INDIAN HEAD MINE
OLIVER CO: CENTER MINE

ABSTRACT
THE OBJECTIVES OF THIS STUDY ARE AS FOLLOW: 1. TO RELATE THE VARIOUS PRACTICES OF SPOIL EMPLACEMENT IN THE STUDY AREA TO THE SPECIFIC DEGREE OF STABILITY OR INSTABILITY ASSOCIATED WITH EACH; 2. TO DETERMINE THE RELATIONSHIP BETWEEN GROUNDWATER MOVEMENT WITHIN SPOILS AND METHOD OF EMPLACEMENT OF SPOILS; 3. TO DETERMINE WHETHER THE TIME OF YEAR DURING WHICH EMPLACEMENT OCCURS HAS AN EFFECT UPON THE GROUNDWATER AND STABILITY CHARACTERISTIC OF SPOILS; AND 4. TO DETERMINE THE TECHNIQUES OF SPOIL EMPLACEMENT NECESSARY TO ASSURE OPTIMUM STABILITY.

REPORTS AND PUBLICATIONS
GROENEWOLD, G.H. AND M.J. BAILEY. 1978. INSTABILITY OF CONTOURED STRIP-MINE SPOILS- WESTERN NORTH DAKOTA. PP. 685-792 IN M.K. WALI (ED.) ECOLOGY AND COAL RESOURCE DEVELOPMENT. PERGAMON PRESS, NY
GROENEWOLD, G.H. AND L.M. WINCZEWSKI. 1977. PROBABLE CAUSES OF SURFACE INSTABILITY IN CONTOURED STRIP-MINE SPOILS--WESTERN NORTH DAKOTA. PROC. NORTH DAKOTA ACAD. SCI. 31(1):160-167.

PUBLICATIONS ADDRESS
NORTH DAKOTA GEOLOGICAL SURVEY, GRAND FORKS, ND 58202

00001469
--------

PROJECT TITLE
EFFECTIVENESS OF NATIVE MULCH IN PROMOTING STABILIZATION AND REVEGETATION OF COAL SURFACE MINED LANDS.

SOURCE NUMBER
2-6000-638

INVESTIGATOR(S)
DR. EDWARD J. DEPURT
JOE G. COENENBERG
CHESTER L. SKILBRED

RESEARCH INSTITUTION
MONTANA STATE UNIV., AG. EXP. STATION
BOZEMAN, MT 59717

COOPERATOR
PEABODY COAL CO.
BIG SKY MINE, BOX 97 / COLSTRIP, MT 59323

PRIMARY SPONSOR
U.S. DEPT. OF AG., SCI. & ED. ADMIN.
ROOM 406-W, S. E. A., U. S. D. A., WASHINGTON, D.C.

SECONDARY SPONSOR
MONTANA STATE UNIV.

PRIMARY FUNDING AMOUNT
60,000

SECONDARY FUNDING AMOUNT
3,246

TIME FRAME
OCT. 1979 TO SEPT. 1981

LOCATION
MT - ROSEBUD CO.

ABSTRACT
PLANT MATERIALS HARVESTED FROM NATIVE RANGELAND PRIOR TO COAL SURFACE MINING WILL BE EVALUATED FOR POTENTIAL AS A SURFACE AMENDMENT TO ENHANCE RELCAMATION. SUCH NATIVE MULCH MATERIALS WILL FIRST BE COMPARED TO STANDARD MULCHES TO ASSESS THEIR SUITABILITY FOR EROSION CONTROL AND SOIL STABILIZATION. SECONDLY, NATIVE MULCHING WILL BE EVALUATED AS A TECHNIQUE FOR INTRODUCTION OF A DIVERSE

ARRAY OF SEED OF ADAPTED INDIGENOUS PLANT SPECIES, MANY OF WHICH ARE AT PRESENT NOT COMMERCIALLY AVAILABLE FOR DIRECT SEEDING. EXPERIMENTAL VARIABLES WILL INCLUDE MULCHING (NATIVE VS. "STANDARD" VS. NON-MULCHED), NATIVE MULCH HARVEST DATE AND SEEDING (SEEDED VS NON-SEEDED). IF THE NATIVE MULCHING TECHNIQUE PROVES BENEFICIAL, SALVAGE OF EXISTENT VEGETATION ON AREAS TO BE SURFACE MINED FOR SUCH PURPOSES MAY BECOME AS STANDARD A RECLAMATION PROCEDURE AS TOPSOIL SALVAGE AND RE-DISTRIBUTION.

PUBLICATIONS ADDRESS

MONTANA STATE UNIV., AG EXP. STATION
RECLAMATION RESEARCH UNIT, BOZEMAN, MT 59717

00001470

PROJECT TITLE

BREEDING, SELECTION AND SEED INCREASE OF PLANT MATERIALS FOR REHABILITATION OF MINED SOILS

SOURCE NUMBER

65910-20

INVESTIGATOR(S)

DR. HOWARD STUTZ
BRIGHAM YOUNG UNIVERSITY, PROVO, UTAH

RESEARCH INSTITUTION

U. S. DEPT. OF ENERGY, ARGONNE NATIONAL LAB.
LAND RECLAMATION PROGRAM, BLDG. 8, ARGONNE, IL 60439

COOPERATOR

NORTHERN ENERGY RESOURCES CO./UTAH INTERNATIONAL, INC.
550 CALIFORNIA ST. SAN FRANCISCO, CA 94104

PRIMARY SPONSOR

U. S. DEPT. OF ENERGY, ARGONNE NATIONAL LAB.
BLDG. 8, 9700 S. CASS AVENUE, ARGONNE, IL 60439

PRIMARY FUNDING AMOUNT

NOT AVAILABLE

TIME FRAME

OCT, 1975 TO 9999

LOCATION

AZ - NAVAJO MINE
WY - SWEETWATER CO., JIM BRIDGER MINE

ABSTRACT

OBJECTIVES OF THIS PROJECT ARE TO: 1. DETERMINE WHICH PLANT SPECIES ARE BEST SUITED FOR RECLAMATION IN ARID CLIMATES, AND 2. THROUGH PLANT BREEDING AND SELECTION PROCEDURES, PRODUCE ENOUGH SEEDS FROM THE MOST SUITABLE PLANTS AND HYBRIDS TO RECLAIM LARGE SURFACE MINED AREAS. RESEARCHERS GATHERED PLANTS FROM VARIOUS WESTERN SITES THAT APPEARED TO HAVE CHARACTERISTICS NEEDED FOR SURVIVING THE STRESSES OF RECLAMATION. SOME QUALITIES SOUGHT WERE: HIGH SEED GERMINATION RATES, RAPID GROWTH, RESISTANCE TO DROUGHT AND COLD, AND TOLERANCE TO SALTY, CLAY SOILS. USING BREEDING AND SELECTION PROCEDURES THE PLANTS FOUND MOST LIKELY TO BE SUCCESSFUL WERE MEMBERS OF THE GENUS ATRIPLEX. THREE YEARS OF EXPERIMENTS HAVE SO FAR PRODUCED FOUR NEW ATRIPLEX HYBRID PRODUCTS EXHIBITING SUPERIOR ADAPTATION TO DROUGHT TOLERANCE AND PLANT VIGOR THAT COULD NOT HAVE EVOLVED NATURALLY. TO PRODUCE LARGE AMOUNTS OF SEED AND TO FURTHER TEST THESE HYBRIDS, SEED INCREASE PLOTS DESIGNED FOR MACHINE HARVESTING HAVE BEEN ESTABLISHED. THEY WILL BE HARVESTED AND USED IN RECLAMATION TRIALS AT THE NAVAJO AND JIM BRIDGER MINE SITES. FURTHER SELECTION OF THE PLANTS IN THE SEED INCREASE PLOTS WILL EMPHASIZE MACHINE HARVESTABILITY. THE REGIONAL VARIATION IN CLIMATE AND SOIL AT THESE TWO SITES IS ENOUGH THAT PLANTS ADAPTED TO ONE SITE MAY BE QUITE DIFFERENT FROM THOSE ADAPTED TO THE OTHER. USING THE DATA GATHERED, RECOMMENDATIONS FOR SIMILAR SEED INCREASE ENDEAVORS WILL BE FORMULATED. THE ULTIMATE GOAL OF THE RESEARCH IS THE COMMERCIAL PRODUCTION AND DISTRIBUTION OF HYBRID SEEDS FOR OTHER RECLAMATION PROJECTS. THIS IS A SUBPROJECT OF "LAND RECLAMATION PROGRAM" ERIS PROGRAM NUMBER 00000073, VOL. 1, NO. 1.

PUBLICATIONS ADDRESS

REPORTS ARE AVAILABLE FROM NTIS OR FROM LAND RECLAMATION PROGRAM, BLDG. 8, ARGONNE NATIONAL LAB., ARGONNE IL 60439

MONTANA STATE LIBRARY
930 East Lyndale Avenue
Helena, Montana 59601

1.3 WATER RESOURCES

00001471

PROJECT TITLE
BIG HORN MINE/TONGUE RIVER PROJECT

SOURCE NUMBER
65910-31

INVESTIGATOR(S)
DR. RICHARD B. OLSON
EDWARD H. DETTMAN
W. S. VINIKOUR
J. P. SCHUBERT
A. A. SOBEK
C. E. EDGAR

RESEARCH INSTITUTION
U. S. DEPT. OF ENERGY, ARGONNE NATIONAL LAB.
LAND RECLAMATION PROGRAM
BLDG. 8-9700 SOUTH CASS AVE., ARGONNE, IL 60439

PRIMARY SPONSOR
U. S. DEPT. OF ENERGY, OFFICE OF ENV.
OFFICE OF HEALTH AND ENVIRONMENTAL RESEARCH
WASHINGTON, D.C.

PRIMARY FUNDING AMOUNT
200,000

TIME FRAME
JULY 1975 TO SEPT. 1979

LOCATION
WY - SHERIDAN CO.; POWDER RIVER BASIN, TONGUE RIVER, BIG HORN MINE

ABSTRACT

LARGE SCALE COAL MINING OPERATIONS IN THE WEST ARE A RELATIVELY RECENT DEVELOPMENT. THEREFORE, THE EXISTING AND POTENTIAL IMPACTS UPON HYDROLOGIC AND AQUATIC SYSTEMS ARE NOT WELL KNOWN. THOUGH THE MINED LANDS OFTEN ARE LOCATED ALONG EPHEMERAL OR INTERMITTENT STREAMS, ANY LARGE-SCALE OPERATIONS ARE (OR WILL BE)SITUATED IN CLOSE PROXIMITY TO PERENNIAL STREAMS HAVING GREAT AGRICULTURAL AND RECREATIONAL VALUE. ALL SURFACE MINING ALTERS SURFACE AND SUBSURFACE HYDROLOGIC SYSTEMS TO SOME EXTENT, OFTEN SIGNIFICANTLY. THE RESULTING POTENTIAL IMPACTS SUCH AS AQUIFER DISRUPTION, EXCESS SURFACE RUNOFF, CHANGES IN INFILTRATION AND RECHARGE CAPACITY, AND ALTERED AQUIFER PERMEABILITIES HAVE NOT BEEN ADEQUATELY DOCUMENTED OR STUDIED AT WESTERN MINE SITES. THE EFFECTIVENESS OF CURRENT RECLAMATION TECHNIQUES IN MAINTAINING GROUNDWATER QUALITY IN WESTERN MINING REGIONS IS ALSO GENERALLY UNPROVEN. IN VIEW OF THIS PAUCITY OF INFORMATION, THE LAND RECLAMATION PROGRAM HAS UNDERTAKEN A COMPREHENSIVE RESEARCH STUDY IN ONE REPRESENTATIVE WATERSHED - THE TONGUE RIVER NEAR THE BIG HORN MINE - TO INVESTIGATE THE FORMATION, TRANSPORT AND ULTIMATE ENVIRONMENTAL EFFECTS OF MINE RELATED POLLUTANTS IN THE WATERSHED. THE OVERALL PROJECT OBJECTIVES ARE: 1. THROUGH DETAILED AND COMPREHENSIVE INVESTIGATIONS OF HYDROLOGY, CHEMICAL AND PHYSICAL PROPERTIES OF OVERBURDEN AND SPOILS, WATER QUALITY, AND AQUATIC ECOLOGY IN THE POWDER RIVER BASIN, DETERMINE THE POTENTIAL IMPACTS TO SURFACE WATER AND GROUNDWATER RESOURCES BY COAL EXTRACTION ACTIVITIES THAT COULD AFFECT PRESENT OR FUTURE USE OF THE RESOURCES; 2. TO DEVELOP INTEGRATED MODELING AND OTHER ASSESSMENT CAPABILITIES FOR PREDICTION OF IMPACTS OF ON-GOING AND PROPOSED MINING OPERATIONS AND RECLAMATION STRATEGIES IN THE TONGUE RIVER WATERSHED; AND 3. TO EVOLVE RECOMMENDATIONS RELATING MINING AND RECLAMATION ALTERNATIVES TO THE MINIMIZATION OF IMPACTS TO WATER RESOURCES IN THE WESTERN U.S. THIS IS A SUBPROJECT OF ERIS PROJECT NO. 00000073, VOL. 1, NO. 1.

PUBLICATIONS ADDRESS
AVAILABLE FROM NTIS OR FROM LAND RECLAMATION PROGRAM,
ARGONNE NATIONAL LAB., ARGONNE, IL 60439

00001472

PROJECT TITLE
ESTABLISHMENT OF BIOTIC AND HYDROLOGIC STABILITY IN A RECLAIMED COAL STRIP MINED RIVER CHANNEL

SOURCE NUMBER
60-6678/59-6759

INVESTIGATOR(S)
JAMES A. GORE
LORA S. JOHNSON

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PRIMARY SPONSOR
UNIV. OF WYOMING, ROCKY MOUNTAIN INST. OF ENERGY AND ENV.
LARAMIE, WY 82071

SECONDARY SPONSOR
PETER KIEWIT SON'S CO., MINING DISTRICT, SHERIDAN, WYOMING

PRIMARY FUNDING AMOUNT
12,500

SECONDARY FUNDING AMOUNT
10,000

TIME FRAME
JAN. 1979 TO JAN. 1980

LOCATION
WY - SHERIDAN CO., BIG HORN MINE

ABSTRACT

RECLAMATION OF A COAL STRIP-MINED SECTION OF THE TONGUE RIVER, FLOWING NORTHEAST THROUGH THE BIG HORN MINE AT SHERIDAN, WYOMING, BEGAN IN AUGUST, 1978. FOR SEVERAL YEARS THE RIVER HAD BEEN DIVERTED INTO A PIT BUT WAS RETURNED TO ITS ORIGINAL CHANNEL IN 1978. THE CHANNEL CUT AND GRADED TO ITS APPROXIMATE PRE-MINING CONFIGURATION.

BANKS WERE PLANTED WITH GRASSES, LEGUMES, TREES, AND SHRUBS, AND LINED WITH BOULDERS. PINE TREES WERE ANCHORED AND CABLED INTO THE BANK. LARGE BOULDERS WERE PLACED AT INTERVALS IN THE CHANNEL TO PROVIDE POOLING AND COVER FOR FISH. STREAM DEPTH WAS PREDICTED TO BE 46 CENTIMETERS. GORE AND JOHNSON STUDIED CHANGES IN THE RECLAIMED CHANNEL WITH REGARD TO BOTTOM DWELLING (BENTHIC) INVERTEBRATES, FISH, SUSPENDED SEDIMENT LOAD, AND STABILITY, AND MADE FUTURE RECOMMENDATIONS. A STABLE COMMUNITY OF BENTHIC ORGANISMS WAS REESTABLISHED IN 300 DAYS. RECOLONIZATION WAS PRINCIPALLY BY PASSIVE DRIFT FROM UPSTREAM AREAS, BUT THERE WAS SOME MIGRATION FROM DOWNSTREAM AREAS. PRIMARY COLONIZERS WERE MAYFLIES. THE MEDIUM COBBLE SUBSTRATE WAS AN EXCELLENT CHOICE FOR SUCH RE-COLONIZATION. AFTER ONE YEAR THE DENSITY OF THE FISH COMMUNITY WAS LOW, BUT STABLE COMPARED TO UNDISTURBED AREAS. THE MOBILITY OF FISH, PLUS SEASONAL MIGRATIONS, MAKE DEFINING A STABLE POPULATION DIFFICULT. GORE AND JOHNSON SUGGEST USING AN "INDICATOR SPECIES" SUCH AS ROCK BASS, THAT CHARACTERISTICALLY STAYS IN ONE LOCATION OVER A SPECIFIED PERIOD OF TIME. MORE SNAGS WERE RECOMMENDED TO IMPROVE THE FISH HABITAT. HYDRAULIC STABILITY REQUIRES A CEMENTED BOTTOM (IMBEDDED SUBSTRATE MATERIAL), CONSTANT SINUOSITY, AND A PREDICTABLE FLOW PATTERN THROUGH THE CHANNEL. GENERALLY THESE CONDITIONS WERE MET. THE LARGE BOULDERS AND THE ENGINEERED STREAM SINUOSITY WERE ABLE TO CONTAIN THE STREAM DURING PEAK RUNOFF. OVERALL FLOW AND DEPTH PATTERNS WERE STABLE, AND THE SUBSTRATE WAS WELL CEMENTED, BUT THE CHANNEL SHOULD BE OBSERVED FOR SEVERAL MORE RUNOFF SEASONS FOR MORE SUBTLE CHANGES SUCH AS GRAVEL BAR AND RUBBLE PILE FORMATION.

REPORTS AND PUBLICATIONS

GORE, J. A. AND L. S. JOHNSON. 1979. BIOTIC RECOVERY OF A RECLAIMED RIVER CHANNEL AFTER COAL STRIP MINING.
GORE J. A. 1979. PATTERNS OF INITIAL BENTHIC RECOLONIZATION OF A RECLAIMED COAL STRIP-MINED RIVER CHANNEL.
GORE, J. A. AND L. S. JOHNSON. 1980. ESTABLISHMENT OF BIOTIC AND HYDROLOGIC STABILITY IN A RECLAIMED COAL STRIP-MINED RIVER CHANNEL.

PUBLICATIONS ADDRESS

JAMES A. GORE, WATER RESOURCES RESEARCH INST., P.O. BOX 3067
UNIVERSITY STATION, UNIV. OF WYOMING, LARAMIE, WY 82071.

00001473

PROJECT TITLE

THE USE OF MEANDER PARAMETERS IN THE RESTORATION OF MINED STREAM BEDS IN THE EASTERN POWDER RIVER BASIN.

INVESTIGATOR(S)

VICTOR HASFURTHER
ROBERT P. RECHARD

RESEARCH INSTITUTION

UNIV. OF WYOMING, DEPT. OF CIVIL ENG.
P.O. BOX 3295, UNIVERSITY STATION, LARAMIE, WY 82071

COOPERATOR

UNIV. OF WYOMING, WATER RESOURCES RESEARCH INST.
P.O. BOX 3067, UNIVERSITY STATION, LARAMIE, WY 82071

PRIMARY SPONSOR

UNIV. OF WYOMING, INSTITUTE OF ENERGY & ENV.

SECONDARY SPONSOR

U. S. EPA

PRIMARY FUNDING AMOUNT

10,500

SECONDARY FUNDING AMOUNT

3,000

TIME FRAME

JAN. 1979 TO JAN. 1980

LOCATION

WY - CAMPBELL CO.; EASTERN POWDER RIVER BASIN, CHEYENNE RIVER BASIN

ABSTRACT

THE STREAM PATTERN PARAMETERS, WAVELENGTH, RADIUS OF CURVATURE, WIDTH-DEPTH RATIO, AND SINUOSITY, ARE EXAMINED ON NINETEEN EPHEMERAL AND INTERMITTENT STREAMS IN THE EASTERN POWDER RIVER BASIN IN ORDER TO DEVELOP EMPIRICAL RELATIONSHIPS FOR STREAM RESTORATION AFTER SURFACE MINING. THE EXAMINATION OF THE WAVELENGTH WAS DONE SPECTRALLY, VISUALLY, AND BY COMPUTER AVERAGING. THE ENTIRE PARAMETER EXAMINATION PROCESS WAS PROGRAMMED FOR THE COMPUTER TO ALLOW OTHERS TO QUICKLY EXAMINE OTHER STREAM BASINS IN A SIMILAR MANNER. SEVERAL EMPIRICAL RELATIONSHIPS ARE PRESENTED WHICH ARE USEFUL EITHER FROM A PRACTICAL DESIGN STANDPOINT OR FOR ELUCIDATING STREAM PATTERN INTERRELATIONSHIPS.

REPORTS AND PUBLICATIONS

RECHARD, R. P. AND V. R. HASFURTHER. 1979. "EXAMINING STREAM MEANDER PARAMETERS IN THE EASTERN POWDER RIVER BASIN". PRESENTED AT SYMPOSIUM ON SURFACE MINING HYDROLOGY, SEDIMENTOLOGY, AND RECLAMATION, LEXINGTON, KY DEC. 4-7, 1979.

00001474

PROJECT TITLE

HYDROLOGIC ATLAS OF WYOMING

INVESTIGATOR(S)

DONALD ALFORD
UNIV. OF WYOMING WATER RESOURCES RESEARCH INST.
UNIVERSITY STATION BOX 3067, LARAMIE, WY 82071

RESEARCH INSTITUTION

UNIV. OF WYOMING, INST. OF ENERGY & ENV.
UNIVERSITY STATION BOX 3965
LARAMIE, WYOMING 82071

PRIMARY SPONSOR

UNIV. OF WYOMING, INST. OF ENERGY & ENV.
INDUSTRIAL FUND

PRIMARY FUNDING AMOUNT
29,965

TIME FRAME
JAN. 1978 TO DEC. 1979

LOCATION
WY - SWEETWATER CO.; JOHNSON CO.; CONVERSE CO., NATRONA CO.

ABSTRACT
THE PROJECT IS A CONTINUATION OF 1978 EFFORTS TO PREPARE A HYDROLOGIC ATLAS OF THE POWDER RIVER BASIN. 1979 EFFORTS WERE CONCENTRATED IN THE GREEN RIVER BASIN OF WYOMING. THE LONG-RANGE PURPOSE IS TO PREPARE A CONCISE, READILY AVAILABLE SOURCE OF BASELINE DATA RELATING TO THE MAJOR HYDROLOGIC REGIMES IN WYOMING.

PUBLICATIONS ADDRESS
UNIV. OF WYOMING INST. OF ENERGY & ENV.
UNIVERSITY STATION BOX 3965, LARAMIE, WY 82071

00001475

PROJECT TITLE
MECHANISMS, DISTRIBUTION, AND FREQUENCY OF GROUNDWATER RECHARGE IN UPLAND AREAS OF WESTERN NORTH DAKOTA

SOURCE NUMBER
4547

INVESTIGATOR(S)
GERALD GROENEWOLD
BERND REHM
NORTH DAKOTA GEOLOGICAL SURVEY
UNIV. STATION, GRAND FORKS, ND 58202

RESEARCH INSTITUTION
UNIV. OF NORTH DAKOTA, ENG. EXP. STATION
UNIV. STATION, GRAND FORKS, ND 58202

PRIMARY SPONSOR
OFFICE OF WATER RESEARCH AND TECHNOLOGY
NORTH DAKOTA STATE UNIV., DEPT. OF CHEMISTRY
FARGO, ND 58102

PRIMARY FUNDING AMOUNT
15,000

SECONDARY FUNDING AMOUNT
6,350

TIME FRAME
OCT. 1978 TO SEPT. 1979

LOCATION
ND - MCLEAN CO.; MERCER CO.; OLIVER CO.

ABSTRACT
THE OBJECTIVES ARE TO DETERMINE HOW, WHEN, AND UNDER WHAT CONDITIONS GROUNDWATER RECHARGE OCCURS WITHIN THE STUDY SITES. THE RESULTS OF THE STUDY WILL CONSIST OF OBSERVATION OF WATER TABLE FLUCTUATIONS AT SEVERAL SPECIFIC SITES. DOCUMENTATION OF METEOROLOGICAL EVENTS DURING THE PERIOD OF RECORD, DATA ON MAJOR ION CHEMISTRY AND ENVIRONMENTAL ISOTOPES OBSERVED AT VARIOUS POINTS WITHIN THE SHALLOW GROUNDWATER ZONE OVER THE PERIOD OF OBSERVATION, AND AN INTERPRETIVE SYNTHESIS OF THESE DATA AS THEY RELATE TO THE AMOUNT AND TIMING OF GROUNDWATER RECHARGE.

00001476

PROJECT TITLE
EVALUATION OF SURFACE AND GROUNDWATER PROBLEMS ASSOCIATED WITH STRIP MINE SITES: PHASE II

SOURCE NUMBER
79061

INVESTIGATOR(S)
T. T. WILLIAMS, MONTANA STATE UNIV.
ROBERT KOOB, NORTH DAKOTA STATE UNIV.
PAUL RECHARD, UNIV. OF WYOMING

RESEARCH INSTITUTION
MONTANA STATE UNIV., DEPT . OF CIVIL ENG.
BOZEMAN, MT 59717

PRIMARY SPONSOR
U. S. EPA, EXTRACTION TECHNOLOGY BRANCH
INDUSTRIAL ENVIRONMENTAL RESEARCH LAB., CINCINNATI, OH 45268

SECONDARY SPONSOR
MONTANA STATE UNIV./ NORTH DAKOTA STATE UNIV./
UNIV. OF WYOMING

PRIMARY FUNDING AMOUNT
1978-9:450,000; 1979

SECONDARY FUNDING AMOUNT
247,420

TIME FRAME
SEPT. 1978 TO SEPT. 1981

LOCATION
WY - CAMPBELL CO., BLACK THUNDER MINE
MT - BIGHORN CO., EAST DECKER MINE
ND - MCLEAN CO., FALKIRK MINE

ABSTRACT
CONTINUATION STUDY OF THREE SPECIFIC MINE SITES: EAST DECKER MINE, MONTANA; FALKIRK MINE, UNDERWOOD, NORTH DAKOTA; ARCO BLACK THUNDER MINE, WYOMING. THE EARLIER STUDY CONCLUDED SEPT. 1978, IDENTIFYING CRITICAL FACTORS INFLUENCING SURFACE AND GROUNDWATER CHANGES RESULTING FROM STRIP MINING OPERATIONS. THE PRESENT STUDY EXTENDS AND FURTHER DEFINES THOSE FACTORS. (SEE ERIS PROJECT NO. 00001477, VOL. 5, NO. 1 FOR A RELATED PROJECT)

REPORTS AND PUBLICATIONS
FINAL REPORT, PHASE I STUDY-TO BE PUBLISHED BY EPA
NUMEROUS PAPERS AND REPORTS ALSO PREPARED

PUBLICATIONS ADDRESS
AVAILABLE FROM EPA

00001477

PROJECT TITLE
EVALUATION OF SURFACE AND GROUND WATER PROBLEMS ASSOCIATED WITH STRIP MINE SITES: PHASE II
SOURCE NUMBER
4513
INVESTIGATOR(S)
GERALD GROENEWOLD
BERND REHM
WILLIAM PETERSON
NORTH DAKOTA GEOLOGICAL SURVEY, GRAND FORKS, ND 58202
RESEARCH INSTITUTION
UNIV. OF NORTH DAKOTA, ENG. EXP. STATION
UNIV. STATION, GRAND FORKS, ND 58202
PRIMARY SPONSOR
U.S. EPA
MINING POLLUTION CONTROL BRANCH, EIRC, CINCINNATI, OH
SECONDARY SPONSOR
NORTH DAKOTA GEOLOGICAL SURVEY
PRIMARY FUNDING AMOUNT
150,000
SECONDARY FUNDING AMOUNT
45,000
TIME FRAME
SEPT. 1978 TO SEPT. 1981
LOCATION
ND - MCLEAN CO., FALKIRK MINE
ABSTRACT

A RESEARCH PROGRAM INVOLVING FIVE UNIVERSITIES IN THE THREE STATES OF MONTANA, NORTH DAKOTA AND WYOMING HAS BEEN INITIATED UNDER THE SPONSORSHIP OF THE ENVIRONMENTAL PROTECTION AGENCY TO RESPOND TO A VARIETY OF CONCERNS PERTINENT TO SURFACE MINING IN THE NORTHERN GREAT PLAINS. THESE CONCERNS INCLUDE: 1: WHAT IS THE LOCAL AND REGIONAL IMPACT OF SURFACE MINING ON GROUNDWATER TABLES AND GROUNDWATER QUALITY? 2: WHAT IS THE LOCAL AND REGIONAL IMPACT OF SURFACE MINING ON SURFACE WATER FLOWS AND SURFACE WATER QUALITY? 3: HOW MAY NEW WATER SUPPLIES OF ACCEPTABLE QUALITY BE DEVELOPED IN MINED AREAS? 4: HOW CAN LONG-TERM DELETERIOUS EFFECTS TO AGRICULTURE DUE TO DEVELOPMENT AND MIGRATION OF SALINITY IN THE SOIL ZONE BE PREVENTED?

THE THREE PHASE PROGRAM DEVELOPED TO SPEAK TO THESE CONCERNS INCLUDES: PHASE I, 1975-1978. PHYSICAL AND CHEMICAL CHARACTERIZATION OF POTENTIAL STRIP MINE SITES AND ASSOCIATED WATERS. DEVELOPMENT OF PRELIMINARY MODELS TO DESCRIBE FLOW PATTERNS AND CHEMICAL CHARACTERISTICS.

PHASE II. 1978-1981. DEVELOPMENT AND REFINEMENT OF A PREDICTIVE FRAMEWORK CAPABLE OF EXPLAINING SATISFACTORILY INITIAL CONDITIONS AND PROVIDING PREDICTION OF THE EFFECTS OF GIVEN MINE PLANS. MONITORING OF THE EFFECTS DURING THE INITIAL MINING PERIOD.

PHASE III. ANTICIPATED CONCLUDING WORK TO BE PROPOSED AT A LATER DATE. APPLICATION OF THE PREDICTIVE FRAMEWORK TO RECLAMATION ACTIVITIES AND THE ACCOMPANYING MONITORING.

PUBLICATIONS ADDRESS
DR. ROBERT KOOB, NDSU DEPT. OF CHEMISTRY, FARGO, ND 58102

1.4 ATMOSPHERIC & BIOENVIRONMENTAL STUDIES

00001478

PROJECT TITLE
COLSTRIP PROJECT EIS
INVESTIGATOR(S)
COLSTRIP EIS TEAM
BONNEVILLE POWER ADMIN., PORTLAND, OR 97208
RESEARCH INSTITUTION
TEXAS INSTRUMENTS, INC.
P.O. BOX 5621, MS 949, DALLAS, TX 75222
COOPERATOR
U.S. DEPT. OF INTERIOR
U.S. DEPT. OF ENERGY
OFFICE OF ENVIRONMENTAL PROJECT REVIEW
10TH AND C STREETS, N.W., RM 4520 WASHINGTON, D.C.
PRIMARY SPONSOR
U.S. BUREAU OF LAND MANAGEMENT
P.O. BOX 30157, BILLINGS, MT 59107
SECONDARY SPONSOR
MONTANA POWER CO.
PRIMARY FUNDING AMOUNT
1,2000,000
TIME FRAME
NOV. 1976 TO JULY 1979
LOCATION
MT - ROSEBUD CO., COLSTRIP, NORTHERN POWDER RIVER BASIN
ABSTRACT
THE OBJECTIVE OF THIS STUDY IS TO DEVELOP AN ENVIRONMENTAL IMPACT STATEMENT ON THE COLSTRIP PROJECT TO BE FILED WITH THE DEPARTMENT OF THE INTERIOR AND THE EPA. THIS STUDY DOES NOT INCLUDE THE TRANSMISSION LINE PROJECT
REPORTS AND PUBLICATIONS
A SUPPLEMENTARY STUDY CALLED THE "TRANSMISSION ENVIRONMENTAL REPORT" WAS USED IN THE PREPARATION OF THE COLSTRIP PROJECT EIS. IT WAS PREPARED BY THE BLM, FS, AND BPA. ALSO ISSUED WAS A SUMMARY REPORT ENTITLED THE "FEDERAL CORRIDOR OPTION SUMMARY."
PUBLICATIONS ADDRESS
COLSTRIP EIS MANAGER
BONNEVILLE POWER ADMINISTRATION
KALISPELL, MT

00001479

PROJECT TITLE
AIR POLLUTION MONITORING OF THE WYODAK POWER PLANT IN NORTHEAST WYOMING
INVESTIGATOR(S)
B. L. DAVIS
L. R. JOHNSON
M. J. FLANNAGAN
STATION AND COAL MINE 4 MILES EAST OF GILLETTE, WYOMING.
RESEARCH INSTITUTION
SOUTH DAKOTA SCHOOL OF MINES & TECH
INST. OF ATMOS. SCI.
RAPID CITY, SD 57701
PRIMARY SPONSOR
BLACK HILLS POWER & LIGHT CO.
RAPID CITY, SD 57702
PRIMARY FUNDING AMOUNT
20,579
TIME FRAME
DEC. 1976 TO MAY 1978
LOCATION
WY - CAMPBELL CO., WYODAK POWER PLANT, GILLETTE
ABSTRACT
THIS STUDY IS TO MONITOR TOTAL SUSPENDED PARTICULATES AT ESTABLISHED SITES IN THE VICINITY OF THE WYODAK POWER
REPORTS AND PUBLICATIONS
NONE

00001480

PROJECT TITLE
AIR QUALITY STUDIES AT BROOKINGS, SOUTH DAKOTA
INVESTIGATOR(S)
B. L. DAVIS
L. R. JOHNSON
M. J. FLANNAGAN
RESEARCH INSTITUTION
SOUTH DAKOTA SCHOOL OF MINES & TECH., INST. OF ATMOS SCI.
RAPID CITY, SOUTH DAKOTA 57701
COOPERATOR
PHYSICAL PLANT
SOUTH DAKOTA STATE UNIV., BROOKINGS SD
PRIMARY SPONSOR
SOUTH DAKOTA STATE GOVERNMENT
OFFICE OF THE STATE ENGINEER, PIERRE, SD
PRIMARY FUNDING AMOUNT
19,451
TIME FRAME
OCT. 1978 TO JAN. 1979
LOCATION
SD - BROOKINGS CO.
ABSTRACT
MEASUREMENT AND NUMERICAL MODELING OF PARTICULATE CONCENTRATIONS OF PLUMES FROM THE SDSU COAL-FIRED POWER PLANT. ESTIMATION OF THE EFFECTS OF THE PLUMES ON AIR QUALITY IN BROOKINGS, SOUTH DAKOTA.
REPORTS AND PUBLICATIONS

DAVIS, JOHNSON, MILLER, AND FLANNAGAN, 1979. AIR QUALITY
MEASUREMENTS AND DIFFUSION MODELING OF THE HEATING
PLANT PLUME AT SD STATE UNIVERSITY, BROOKINGS, SD.
REPORT NO. 79-1.
PUBLICATIONS ADDRESS
SOUTH DAKOTA SCHOOL OF MINES & TECH., INST. OF ATMOS. SCI.
RAPID CITY, SOUTH DAKOTA 57701

00001481

PROJECT TITLE
AEROSOL SIZE DISTRIBUTION MEASUREMENTS AT COLSTRIP, MONTANA
SOURCE NUMBER
79-7; 2419
INVESTIGATOR(S)
L. R. JOHNSON
RESEARCH INSTITUTION
SOUTH DAKOTA SCHOOL OF MINES & TECH., INST. OF ATMOS. SCI.
RAPID CITY, SD 57701
PRIMARY SPONSOR
AMES LAB
IOWA STATE UNIV.
AMES, IOWA 50010
PRIMARY FUNDING AMOUNT
2,724
TIME FRAME
JUNE 1979 TO OCT. 1979
LOCATION
MT - ROSEBUD CO.; COLSTRIP
ABSTRACT
DETERMINATION OF PARTICULATE SIZE DISTRIBUTIONS IN THE
.01 TO 1 M DIAMETER SIZE RANGE FOR 1) A MINING PLUME, 2)
A POWER PLANT PLUME AND 3) BACKGROUND IN THE COLSTRIP
AREA.
REPORTS AND PUBLICATIONS
JOHNSON, L. R. 1979. EAA MEASUREMENTS IN THE COLSTRIP,
MONTANA AREA. INST. OF ATMOS. SCI. PAPER NO. 79-17
PUBLICATIONS ADDRESS
SOUTH DAKOTA SCHOOL OF MINES & TECH., INST. OF ATMOS. SCI.
RAPID CITY, SD 57701

00001482

PROJECT TITLE
WIND TUNNEL INVESTIGATION OF PLUME DISPERSION AND
TRANSPORT OVER COMPLEX TERRAIN FOR COLSTRIP POWER
PLANT - STABLE STRATIFICATION
INVESTIGATOR(S)
R. J. LABRIE
RESEARCH INSTITUTION
MONTANA POWER CO.
40 EAST BROADWAY
BUTTE, MT 59701
COOPERATOR
COLORADO STATE UNIV.
FORT COLLINS, CO
PRIMARY SPONSOR
MONTANA POWER COMPANY
SECONDARY SPONSOR
PUGET SOUND POWER & LIGHT
PACIFIC POWER & LIGHT
PORTLAND GENERAL ELECTRIC / WASHINGTON WATER POWER
PRIMARY FUNDING AMOUNT
NOT AVAILABLE
TIME FRAME
SEPT. 1978 TO MAY 1979
LOCATION
MT - ROSEBUD CO.; COLSTRIP
ABSTRACT
A WIND TUNNEL TEST OF AIR UNDER STABLE STRATIFICATION
WAS CONDUCTED ON A SCALE MODEL OF TERRAIN IN THE VICINITY
OF COLSTRIP, MT. RESULTING GROUND LEVEL CONCENTRATIONS
OF TRACER RELEASED AT PLUME HEIGHT WERE MEASURED TO
ASSESS THE VALIDITY OF THE EPA VALLEY MODEL ASSUMPTION
OF PLUME IMPACTION ON ELEVATED TERRAIN. THE STUDY
SHOWED THE VALLEY MODEL OVERPREDICTED THE GROUND LEVEL
CONCENTRATIONS FOR STABILITY CATEGORY E.
REPORTS AND PUBLICATIONS
REPORT BY COLORADO STATE UNIV. FLUID MECHANICS AND WIND
ENGINEERING PROGRAM.
PUBLICATIONS ADDRESS
COLLEGE OF ENGINEERING, COLORADO STATE UNIV.

00001483

PROJECT TITLE
COLSTRIP DIFFUSION EXPERIMENTS
INVESTIGATOR(S)
R. J. LABRIE
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MONTANA POWER CO.
40 EAST BROADWAY, BUTTE, MT 59701
COOPERATOR
MONTANA STATE UNIV., DEPT. OF EARTH SCIENCES
BOZEMAN, MT 59717
PRIMARY SPONSOR
MONTANA POWER CO
SECONDARY SPONSOR
PUGET SOUND POWER & LIGHT, PACIFIC POWER & LIGHT,
PORTLAND GENERAL ELECTRIC, WASHINGTON WATER POWER
PRIMARY FUNDING AMOUNT
NOT AVAILABLE

TIME FRAME
SEPT. 1973 TO AUG. 1975
LOCATION
MT - ROSEBUD CO.: COLSTRIP
ABSTRACT
A DIFFUSION EXPERIMENT WAS CONDUCTED AT COLSTRIP, MONTANA TO ESTIMATE THE EFFECTS OF THE SEMI-RUGGED TERRAIN ON THE DISPERSION OF A PLUME FROM A LARGE ELEVATED SOURCE. THE RESULTS SHOW THAT THE ADDITIONAL MECHANICAL TURBULENCE INDUCED BY THE TERRAIN PLAYS A SIGNIFICANT ROLE IN THE DISPERSION OF CONTAMINANTS.
REPORTS AND PUBLICATIONS
REPORT TO THE MONTANA POWER CO. AND THE AIR QUALITY BUREAU OF THE MONTANA STATE DEPT. OF HEALTH AND ENVIRONMENTAL SCIENCES.

00001484

PROJECT TITLE
DISPOSAL OF HIGH ALKALINE FLY ASH SLUDGE IN A DECOALED MINE SEAM
SOURCE NUMBER
4563
INVESTIGATOR(S)
OSCAR MANZ
GERALD GROENEWOLD
RESEARCH INSTITUTION
UNIV. OF NORTH DAKOTA, ENG. EXP. STATION
UNIV. STATION, GRAND FORKS, ND 58202
PRIMARY SPONSOR
U. S. EPA
RESEARCH TRIANGLE PARK, NORTH CAROLINA, 27711
SECONDARY SPONSOR
UNIV. OF NORTH DAKOTA
PRIMARY FUNDING AMOUNT
100,000
SECONDARY FUNDING AMOUNT
5,000
TIME FRAME
AUG. 1977 TO AUG. 1979
LOCATION
ND - OLIVER CO.: CENTER MINE
ABSTRACT
THE OBJECTIVE OF THIS PROJECT WILL BE TO DETERMINE THE ENVIRONMENTAL EFFECTS OF SLUDGE DISPOSAL IN A DECOALED OPEN PIT MINE. THE PROPOSAL SETS FORTH A RESEARCH PROJECT TO MONITOR THE GROUNDWATER AND LEACHATE IN THE PROXIMITY OF THE BURIED SLUDGE. ALSO, THE PROPERTIES OF SLUDGE, ASH AND SOIL WILL BE INVESTIGATED. THE STABILITY OF MINE SPOIL DEPOSITED OVER THE SLUDGE WILLBE ASSESSED. THE PROJECT INVOLVES FIVE TASKS: 1) TO STUDY AVAILABLE MINE, SLUDGE, AND SLUDGE DISPOSAL CHARACTERIZATIONS FROM A THREE-YEAR MINING PLAN AND LABORATORY ANALYSES OF PILOT PLANT SLUDGE; 2) ADDITIONAL SLUDGE CHARACTERIZATION FROM DISMANTLED PILOT PLANT; 3) EXTENSIVE SAMPLING AND TESTING PROGRAM PRIOR TO SUBSEQUENT INSTALLATION OF SEVERAL GROUNDWATER AND LEACHATE WELLS IN PROXIMITY OF BURIED SLUDGE IN THE DECOALED MINE SEAM AND SLUDGE POND, ANALYSIS OF GROUNDWATER, LEACHATE, SUPERNANT, SLUDGE AND SOIL FOR FOR A 15 MONTH PERIOD; 4) ECONOMIC STUDY BY ARTHUR D. LITTLE, INC. OF DISPOSAL OF SLUDGE IN DECOALED MINE SEAM; AND 5) DATA ASSESSMENT AND FINAL REPORT, TO BE INCORPORATED IN ARTHUR D. LITTLE, INC. REPORT.

00001485

PROJECT TITLE
BSM AIR AND CLIMATOLOGY STUDY
SOURCE NUMBER
213-70-A
INVESTIGATOR(S)
ROBERT E. CARROLL
JOHN COEFIELD
RESEARCH INSTITUTION
ECOLOGICAL CONSULTING SERVICE (ECON, INC.)
1300 CEDAR
HELENA, MT
PRIMARY SPONSOR
PEABODY COAL CO.
1205 E. 46TH AVE SUITE 600
DENVER, CO
PRIMARY FUNDING AMOUNT
NOT AVAILABLE
TIME FRAME
JAN. 1979 TO DEC. 1979
LOCATION
MT - ROSEBUD CO.: BIG SKY MINE
ABSTRACT
THE PRIME OBJECTIVE OF THIS STUDY IS TO MONITOR THE AIR QUALITY AND CLIMATOLOGY OF THE BIG SKY MINE AREA. A FULL METEROLOGICAL STATION HAS BEEN SET UP TO GATHER CLIMATOLOGICAL AND AIR PARTICULATE DATA AS REQUIRED BY LAW FOR MINING PERMIT APPLICATIONS. THIS PROJECT HAS BEEN CONTINUOUS SINCE 1973.
REPORTS AND PUBLICATIONS
ANNUAL REPORT
PUBLICATIONS ADDRESS
PEABODY FILES ANNUALLY WITH REGULATORY AGENCIES

00001486

PROJECT TITLE

COLSTRIP COLOR INFRARED PHOTO INTERPRETATION
SOURCE NUMBER
217-76-A
INVESTIGATOR(S)
ROBERT E. CARROLL
RESEARCH INSTITUTION
ECON, INC.
1300 CEDAR
HELENA, MT
PRIMARY SPONSOR
MONTANA POWER CO.
40 E. BROADWAY
BUTTE, MT
PRIMARY FUNDING AMOUNT
NOT AVAILABLE
TIME FRAME
JAN. 1979 TO DEC. 1979
LOCATION
MT - ROSEBUD CO.; COLSTRIP
ABSTRACT
SINCE 1973, THE COLSTRIP AREA HAS BEEN MONITORED BY MEANS OF COLOR INFRARED PHOTOGRAPHY. A 200 SQUARE MILE AREA HAS BEEN PHOTOGRAPHED FROM THE AIR TO CHECK FOR ANY VEGETATIVE CHANGES WHICH MIGHT BE ATTRIBUTED TO MINE ACTIVITIES.

00001487

PROJECT TITLE
BSM VEGETATION MAPPING AND PRODUCTION
SOURCE NUMBER
212-83-14
INVESTIGATOR(S)
ROBERT C. CARROLL
DARWIN L. SELL
RESEARCH INSTITUTION
ECON, INC.
1300 CEDAR, HELENA, MT 59601
PRIMARY SPONSOR
PEABODY COAL CO.
1201S EAST 46TH AVE SUITE 600
DENVER, CO
PRIMARY FUNDING AMOUNT
NOT AVAILABLE
TIME FRAME
JAN. 1979 TO DEC. 1979
LOCATION
MT - ROSEBUD CO.; BIG SKY MINE
ABSTRACT
SINCE 1973, THE VEGETATION PRODUCTION OF THE BIG SKY MINE AREA HAS BEEN ANNUALLY MONITORED AND EACH VEGETATIVE COMMUNITY MEASURED. VEGETATIVE COMMUNITIES ARE DELINEATED ON A 1 INCH TO 400 FT SCALE MAP.
REPORTS AND PUBLICATIONS
PEABODY FILES ANNUALLY WITH REGULATORY AGENCIES

00001488

PROJECT TITLE
PEABODY COAL CO. ROCHELLE, WY, VEGETATION
SOURCE NUMBER
199-83-A
INVESTIGATOR(S)
ROBERT E. CARROLL
DARWIN L. SELL
RESEARCH INSTITUTION
ECON, INC.
1300 CEDAR
HELENA, MT 59601
PRIMARY SPONSOR
PEABODY COAL CO.
1201S EAST 46TH AVE SUITE 600
DENVER, CO
PRIMARY FUNDING AMOUNT
NOT AVAILABLE
TIME FRAME
JAN. 1979 TO DEC. 1979
LOCATION
WY - CAMPBELL CO.; CONVERSE CO.
ABSTRACT
THE OBJECTIVE OF THIS PROJECT HAS BEEN TO MAP AND QUANTIFY VARIOUS VEGETATION TYPES AS WELL AS DETERMINE VEGETATION PRODUCTION ON A SEVERAL SQUARE MILE AREA OF CAMPBELL AND CONVERSE COUNTIES.
REPORTS AND PUBLICATIONS
PEABODY COAL CO. WILL PRESENT A REPORT AS PART OF A PERMIT APPLICATION, AND FILE WITH SEVERAL REGULATORY AGENCIES.

00001489

PROJECT TITLE
COLSTRIP AREA WILDLIFE MONITORING
SOURCE NUMBER
216-85-A
INVESTIGATOR(S)
ROBERT E. CARROLL
WM. F. SCHWARZKOPH
RESEARCH INSTITUTION
ECON, INC.
1300 CEDAR
HELENA, MT
PRIMARY SPONSOR
WESTERN ENERGY CO.

40 E. BROADWAY
BUTTE, MT
PRIMARY FUNDING AMOUNT
NOT AVAILABLE
TIME FRAME
JAN. 1979 TO DEC. 1979
LOCATION
MT - ROSEBUD CO.; COLSTRIP
ABSTRACT
SINCE 1972, THE WILDLIFE OF A 200 SQUARE MILE AREA CENTERING COLSTRIP, MT HAS BEEN ANNUALLY MONITORED. THE MONITORING HELPS DETERMINE THE WILDLIFE SPECIES PRESENT AS WELL AS THE ABUNDANCE OF WILDLIFE AND THEIR SEASONAL AREAS OF USE. THE INFORMATION IS USED FOR WILDLIFE MANAGEMENT PLANS AND PERMIT APPLICATIONS.
REPORTS AND PUBLICATIONS
WESTERN ENERGY FILES ANNUALLY WITH REGULATORY AGENCIES.

00001490

PROJECT TITLE
BSM RAPTOR STUDY
SOURCE NUMBER
210-85-A
INVESTIGATOR(S)
ROBERT E. CARROLL
WM. F. SCHWARZKOPH
RESEARCH INSTITUTION
ECON, INC.
1300 CEDAR
HELENA, MT
COOPERATOR
U. S. FISH & WILDLIFE SERV.
MONTANA DEPT. OF FISH AND GAME
PRIMARY SPONSOR
PEABODY COAL CO.
12015 EAST 46TH AVE. SUITE 600
DENVER, CO
PRIMARY FUNDING AMOUNT
NOT AVAILABLE
TIME FRAME
NOV. 1978 TO DEC. 1979
LOCATION
MT - ROSEBUD CO.; BIG SKY MINE
ABSTRACT
THE OBJECTIVE OF THIS PROJECT IS A SPECIAL LIFE CYCLE STUDY OF RAPTORS ON A SEVERAL SQUARE MILE AREA OF THE PEABODY BIG SKY MINE. RAPTOR FOOD HABITS, PREY BASE, AND HABITAT PREFERENCES ARE DETERMINED TO AID IN RECLAMATION AND HABITAT PRESERVATION.
REPORTS AND PUBLICATIONS
PEABODY WILL FILE WITH REGULATORY AGENCIES AS PART OF A PERMIT APPLICATION.

00001491

PROJECT TITLE
WILDLIFE STUDY, MONITORING PEABODY BIG SKY MINE
SOURCE NUMBER
211-85-A
INVESTIGATOR(S)
ROBERT E. CARROLL
WILLIAM F. SCHWARZKOPH
RESEARCH INSTITUTION
ECON, INC.
1300 CEDAR
HELENA, MT
PRIMARY SPONSOR
PEABODY COAL CO.
12015 EAST 46TH AVE SUITE 600
DENVER, CO
PRIMARY FUNDING AMOUNT
NOT AVAILABLE
TIME FRAME
JAN. 1979 TO DEC. 1979
LOCATION
MT - ROSEBUD CO.; BIG SKY MINE
ABSTRACT
SINCE 1973, THE WILDLIFE OF THE BIG SKY MINE AREA HAS BEEN MONITORED TO DETERMINE THE SPECIES PRESENT AS WELL AS THE ABUNDANCE OF WILDLIFE AND THEIR SEASONAL AREAS OF USE. THE INFORMATION IS USED FOR WILDLIFE MANAGEMENT PLANS AND RECLAMATION.
REPORTS AND PUBLICATIONS
PEABODY FILES WITH REGULATORY AGENCIES ANNUALLY

00001492

PROJECT TITLE
PEABODY COAL COMPANY ROCHELLE, WYOMING WILDLIFE STUDY
SOURCE NUMBER
204-85-A
INVESTIGATOR(S)
ROBERT E. CARROLL
WILLIAM F. SCHWARZKOPH
RESEARCH INSTITUTION
ECON, INC.
1300 CEDAR
HELENA, MT
PRIMARY SPONSOR
PEABODY COAL CO.
12015 EAST 46TH AVE. SUITE 600

DENVER, CO
PRIMARY FUNDING AMOUNT
NOT AVAILABLE
TIME FRAME
JUNE 1977 TO DEC. 1979
LOCATION
WY - CAMPBELL CO.; CONVERSE CO.
ABSTRACT

THE PROJECT CONSISTS OF A BASELINE WILDLIFE STUDY OF SEVERAL SQUARE MILES IN CAMPBELL AND CONVERSE COUNTIES. SURVEYS HAVE BEEN CONDUCTED TO DETERMINE THE WILDLIFE SPECIES PRESENT AS WELL AS THE ABUNDANCE OF WILDLIFE AND THEIR SEASONAL AREA OF USE. THE INFORMATION IS USED FOR WILDLIFE MANAGEMENT PLANS AND RECLAMATION.

REPORTS AND PUBLICATIONS
PEABODY WILL FILE WITH SEVERAL REGULATORY AGENCIES AS PART OF A PERMIT APPLICATION

00001493

PROJECT TITLE
FLORA OF EASTERN POWDER RIVER BASIN
INVESTIGATOR(S)
DR. RONALD L. HARTMAN
UNIV. OF WYOMING, DEPT. OF BOTANY
RESEARCH INSTITUTION
UNIV. OF WYOMING, INST. OF ENERGY & ENV.
MERICA HALL #323, UNIV. STATION BOX 3965
LARAMIE, WY 82071
PRIMARY SPONSOR
UNIV. OF WYOMING, INST. OF ENERGY & ENV.
UNIV. STATION BOX 3965
LARAMIE, WY 82071
PRIMARY FUNDING AMOUNT
25,262
TIME FRAME
APRIL 1978 TO APRIL 1980
LOCATION
WY - ALBANY CO.
ABSTRACT

THE OBJECTIVES OF THE STUDY ARE FOUR-FOLD: (1) TO INVENTORY THE PLANT SPECIES OCCURRING IN THE POWDER RIVER BASIN; (2) TO DOCUMENT THE DISTRIBUTION, ABUNDANCE AND HABITAT SPECIFICITIES OF THESE SPECIES; (3) TO PRODUCE A PUBLICATION OF THE FLORA OF THE AREA WHICH WILL ENABLE INDIVIDUALS TO IDENTIFY THE SPECIES OF THE AREA; AND (4) TO INCORPORATE THESE DATA INTO A COMPUTERIZED DATA BANK. RESULTS SHOW THAT THE POWDER RIVER BASIN IS MORE FLORISTICALLY DIVERSE THAN WAS PREVIOUSLY THOUGHT. PLANT SPECIMENS ARE IDENTIFIED AND STORED IN THE ROCKY MOUNTAIN HERBARIUM AT THE UNIVERSITY OF WYOMING. THE FINAL REPORT INCLUDES TAXONOMIC KEYS AND DESCRIPTIONS OF ALL VASCULAR PLANTS IN THE POWDER RIVER BASIN, AND WILL BE USEFUL TO INDIVIDUALS PREPARING IMPACT STATEMENTS, WORKING ON LAND RECLAMATION, OR PERFORMING OTHER LAND MANAGEMENT STUDIES.

PUBLICATIONS ADDRESS
UNIV. OF WYOMING, INST. OF ENERGY AND ENV.
UNIV. STATION BOX 3965
LARAMIE, WY 82071

00001494

PROJECT TITLE
EFFECT OF VA MYCORRHIZAE ON WATER STRESS TOLERANCE AND HORMONE BALANCE IN NATIVE WESTERN PLANT SPECIES.
INVESTIGATOR(S)
M. CHRISTENSEN
M. F. ALLEN
THOMAS S. MOORE, JR.
WILLIAM K. SMITH
PETER STAHL
EDITH B. ALLEN
RESEARCH INSTITUTION
UNIV. OF WYOMING, DEPT. OF BOTANY
LARAMIE, WY 82071
PRIMARY SPONSOR
UNIV. OF WYOMING, INST. OF ENERGY AND ENV.
LARAMIE, WY 82071
PRIMARY FUNDING AMOUNT
10,500
TIME FRAME
JAN. 1979 TO DEC. 1979
LOCATION
WY - POWDER RIVER BASIN; SHIRLEY BASIN; HANNA BASIN
ABSTRACT

REVEGETATION OF STRIPMINE SITES WITH DESIRABLE PLANT SPECIES IS A FORMIDABLE AND ESSENTIAL TASK. IT MAY REQUIRE ESTABLISHMENT OF A MUTUALISTIC ASSOCIATION BETWEEN THE PLANTS AND CERTAIN FUNGI, KNOWN AS A VESICULAR-ARBUSCULAR (VA) MYCORRHIZAL FUNGI. HOWEVER, INFORMATION ON THE ESTABLISHMENT OF AND PHYSIOLOGICAL INTERACTIONS BETWEEN PLANT AND FUNGUS IS SCARCE. WE HAVE CONTINUED OUR STUDIES ON VA MYCORRHIZAE (THE ASSOCIATION) BY TESTING FOR CHANGES IN PHYTOHORMONE LEVELS, PHOTOSYNTHESIS, AND PHOSPHORUS AND WATER UPTAKE IN MYCORRHIZAL AND NONMYCORRHIZAL BLUE GRAMA GRASS AND HAVE DETERMINED DENSITIES OF MYCORRHIZAL FUNGUS SPORES IN UNDISTURBED, STOCKPILED, AND RECLAIMED SOILS. VA MYCORRHIZAL INFECTION BENEFICIALLY ALTERS LEVELS OF THE PLANT HORMONES AUXIN, ABSCISIC ACID, CYTOKININS AND GIBBERELLINS. ALSO, PHOTOSYNTHESIS AND NUTRIENT AND WATER UPTAKE ARE IMPROVED WITH MYCORRHIZAE. MYCORRHIZAL SPORE NUMBERS ARE GENERALLY LOWER IN STOCKPILED THAN IN UNDISTURBED TOPSOIL, BUT MAY REMAIN HIGH

ENOUGH FOR REESTABLISHMENT IN DEEPER LEVELS OF THE STOCKPILED TOPSOIL FOR UP TO 5 YEARS. THE SIGNIFICANT LOSS OF SPORES AT THE SURFACE PROBABLY COULD BE ALLEVIATED BY ESTABLISHMENT OF APPROPRIATE PLANTS. FROM THESE RESULTS, WE CONCLUDE THAT ESTABLISHMENT OF MYCORRHIZAE IN STRIP-MINE REVEGETATION IS IMPERATIVE FOR PLANT SURVIVAL AND OUR RECOMMENDATIONS FOR PROCEDURES AIDING NATURAL REESTABLISHMENT ARE PRESENTED.

REPORTS AND PUBLICATIONS

ALLEN, E. B. AND M. F. ALLEN. 1980. SOIL INOCULUM AND MYCORRHIZAL INFECTION OF ANNUAL WEEDS AND NATIVE AND PLANTED PERENNIALS IN RECLAIMED AND UNDISTURBED PRAIRIE.

ALLEN, M. F., T. S. MOORE, JR., AND M. CHRISTENSEN. 1979. GROWTH OF VA-MYCORRHIZAL AND NON-MYCORRHIZAL BOLTELOUA GRACILIS IN A DEFINED MEDIUM.

ALLEN, M. F., T. S. MOORE, JR. AND M. CHRISTENSEN. 1980. PHYTOCHROME CHANGES IN BOLTELOUA GRACILIS INFECTED BY VA MYCORRHIZAE: 1. CYTOKININ INCREASES IN THE HOST PLANT.

PUBLICATIONS ADDRESS

UNIV. OF WYOMING, DEPT. OF BOTANY
UNIV. OF WY, ROCKY MTN. INST. OF ENERGY AND ENV.

00001495

PROJECT TITLE

FURTHER STUDIES OF MERCURY IN THE TONGUE RIVER RESERVOIR AND A SYNOPTIC SURVEY OF MERCURY AND SELENIUM IN FISH AND SEDIMENTS FROM SEVERAL MISSOURI RIVEER BASIN RESERVOIRS.

SOURCE NUMBER

G & C 722

INVESTIGATOR(S)

GLENN R. PHILLIPS
PATRICIA ANN MEOVICK

RESEARCH INSTITUTION

MONTANA STATE UNIV., COOP. FISHERY RESEARCH UNIT
BOZEMAN, MT 59717

COOPERATOR

MONTANA DEPT. OF FISH, WILDLIFE AND PARKS
WYOMING GAME AND FISH COMMISSION
SOUTH DAKOTA DEPT. OF WATER AND NATURAL RESOURCES

PRIMARY SPONSOR

U. S. FISH & WILDLIFE SERV., WELUT
DRAKE CREEKSIDE BLDG., 2625 REDWING RD
FORT COLLINS, CO 80521

PRIMARY FUNDING AMOUNT

302,201

TIME FRAME

JAN. 1980 TO DEC. 1981

LOCATION

MISSOURI RIVER BASIN - MT - WY - SD - ND

ABSTRACT

HIGH CONCENTRATIONS OF MERCURY HAVE BEEN DETECTED IN FISHES OTHER MISSOURI RIVER BASIN RESERVOIRS. THE OBJECTIVES OF THIS STUDY ARE TO: BUDGET MERCURY DYNAMICS IN THE TONGUE RIVER RESERVOIR: EXAMINE THE FOOD CHAIN TRANSPORT OF METHYLMERCURY TO FISHES; EXAMINE LIMNOLOGICAL CONDITIONS THAT INFLUENCE THE BACTERIAL METHYLATION OF INORGANIC MERCURY; SYNOPTICALLY SURVEY MERCURY AND SELENIUM CONCENTRATIONS IN FISHES AND SEDIMENTS FROM SEVERAL UPPER MISSOURI RIVER BASIN RESERVOIRS.

PUBLICATIONS ADDRESS

GLENN R. PHILLIPS
COOP. FISH. RES. UNIT, MONTANA STATE UNIV.
BOZEMAN, MT 59717

00001496

PROJECT TITLE

CHARACTERIZATION OF POPLAR RIVER POWER ASH SAMPLES

SOURCE NUMBER

2-6000-790

INVESTIGATOR(S)

GORDON K. PAGENKOPF

RESEARCH INSTITUTION

MONTANA STATE UNIV., DEPT. OF CHEMISTRY
BOZEMAN, MT 59717

PRIMARY SPONSOR

U. S. EPA
1360 LINCOLN
DENVER, CO

PRIMARY FUNDING AMOUNT

5,000

TIME FRAME

NOV. 1978 TO JAN. 1979

LOCATION

MT - POPLAR RIVER

ABSTRACT

BASED ON ALL AVAILABLE DATA WITH REGARD TO ASH LEACHING TESTS, THE QUALITY OF DISCHARGES TO THE POPLAR RIVER POWER SYSTEM ASH LAGOONS, AND THE PLANNED OPERATION OF THE ASH LAGOON SYSTEM, ANALYSES WILL BE PROVIDED WITH RESPECT TO THE CHEMICAL EQUILIBRIUM CONDITIONS WHICH CAN BE EXPECTED TO OCCUR WITHIN THE LAGOON SYSTEM. IN ADDITION, CONCLUSIONS WILL BE DRAWN IN TERMS OF EXPECTED QUALITY OF ASH LAGOON DECANT WATER. SPECIFIC ATTENTION WILL BE GIVEN TO THE FATE OF BORON.

PUBLICATIONS ADDRESS

MR. ROBERT HAGEN
U. S. EPA
DENVER, CO

1.5 SOCIAL AND ECONOMIC STUDIES

00001497

PROJECT TITLE
STRUCTURAL CHANGES IN U. S. RURAL ECONOMIES: IMPLICATIONS FOR MODELING LOCAL IMPACTS OF COAL DEVELOPMENT.

SOURCE NUMBER
EPA IAG NO. D 8-E766

INVESTIGATOR(S)
LLOYD D. BENDER (MONTANA STATE UNIV.)
LARRY C. PARCELS
GEORGE S. TEMPLE
THOMAS F. STINSON
STANLEY W. VOELKER

RESEARCH INSTITUTION
U. S. DEPT. OF AG., ECONOMIC DEVELOPMENT DIV.
500 12TH ST. SW
WASHINGTON D.C. 20250

COOPERATOR
MONTANA STATE UNIV., DEPT. OF AG. ECONOMICS AND ECONOMICS
BOZEMAN, MT 59717

PRIMARY SPONSOR
U. S. EPA
OFFICE OF RESEARCH & DEVELOPMENT
RD 681 / WASHINGTON, D.C. 20460

SECONDARY SPONSOR
U. S. DEPT. OF AG., ECONOMIC DEVELOPMENT DIV.
NORTH DAKOTA STATE UNIV.
UNIV. OF MINNESOTA

PRIMARY FUNDING AMOUNT
NOT AVAILABLE

TIME FRAME
JULY 1975 TO SEPT. 1981

LOCATION
NATIONWIDE APPLICABILITY

ABSTRACT
DATA INDICATING STRUCTURAL CHANGES IN NONMETRO COUNTIES IS REVIEWED FOR THE PERIOD 1969-76. (1) RURAL COUNTIES PARTICIPATE IN CYCLICAL AND LONG-TERM GROWTH BECAUSE OF GREATER TIES TO THE NATIONAL ECONOMIC SYSTEM. (2) ECONOMIC BASE MULTIPLIERS IN RURAL AREAS ARE CHANGING BECAUSE SERVICE EMPLOYMENT IS AN INCREASING PART OF THE EMPLOYMENT MIX. (3) DEMAND FOR ADDED LABOR WILL COME FROM IMMIGRATION BECAUSE LABOR FORCE PARTICIPATION RATES ARE HIGH AND INCREASING IN RURAL AREAS. (4) RURAL AREAS WILL COMPETE MORE DIRECTLY WITH OTHER AREAS FOR LABOR, AND RELATIVE WAGES WILL INCREASE IN ORDER TO ATTRACT MIGRANTS. (5) THE LASTING EFFECT OF HIGHER PETROLEUM PRICES SHOULD BE INCREASES IN SERVICE EMPLOYMENT IN RURAL AREAS AS THE NUMBER AND LENGTH OF SHOPPING COMMUTES DECLINE. MODELS MUST INCORPORATE STRUCTURAL (BEHAVIORAL) CHANGES IN RURAL ECONOMIES FOR ACCURATE FORECASTING AND IMPACT ANALYSES.

REPORTS AND PUBLICATIONS
BENDER, LLOYD D. 1980. THE EFFECT OF TRENDS IN ECONOMIC STRUCTURES ON POPULATION CHANGE IN RURAL AREAS
PARCELS, LARRY C. AND LLOYD D. BENDER. 1980. POPULATION IMPLICATIONS OF LONG-TERM STRUCTURAL CHANGES IN RURAL ECONOMIES.
BENDER, LLOYD D. 1980. RECENT STRUCTURAL CHANGES IN NONMETROPOLITAN ECONOMIES: MODELING IMPLICATIONS.

00001498

PROJECT TITLE
MODELING IMPACTS OF COAL DEVELOPMENT IN THE NORTHERN GREAT PLAINS.

SOURCE NUMBER
EPA IAG NO. D 8-3766

INVESTIGATOR(S)
LLOYD D. BENDER (MONTANA STATE UNIV.)
LARRY C. PARCELS
GEORGE S. TEMPLE
THOMAS F. STINSON
STANLEY W. VOELKER

RESEARCH INSTITUTION
U. S. DEPT. OF AG., ECONOMIC DEVELOPMENT DIV.
500 12TH ST. SW
WASHINGTON, D. C. 20250

COOPERATOR
MONTANA STATE UNIV., DEPT. OF AG. ECONOMICS & ECONOMICS
BOZEMAN, MT 59717

PRIMARY SPONSOR
U. S. EPA
DEPT. OFFICE OF RESEARCH & DEVELOPMENT
RD 681, WASHINGTON, D.C. 20460

SECONDARY SPONSOR
U. S. DEPT. OF AG., ECONOMIC DEVELOPMENT DIV.
NORTH DAKOTA STATE UNIV.
UNIV. OF MINNESOTA

PRIMARY FUNDING AMOUNT
NOT AVAILABLE

TIME FRAME
SEPT. 1975 TO SEPT. 1980

LOCATION
NORTHERN GREAT PLAINS: MT - WY - ND

ABSTRACT
DESCRIBES THE THEORETICAL AND TECHNICAL PROCEDURES USED IN THE COALTOWN MODEL TO SIMULATE MEASURES OF LOCAL IMPACTS DUE TO COAL DEVELOPMENT IN THE NORTHERN GREAT PLAINS. STOCHASTIC ESTIMATES OF EMPLOYMENT, POPULATION, LABOR FORCE PARTICIPATION, WAGES, MIGRATION, AND LOCAL GOVERNMENT EXPENDITURRES ARE PROVIDED BY THE MODEL.

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   A REVENUE ALGORITHM ESTIMATES LOCAL GOVERNMENT REVENUES
   AND INTERGOVERNMENTAL TRANSFERS.  TECHNICAL EVALUATIONS
   OF THE ESTIMATING EQUATIONS AND THE SIMULATION MODEL ARE
   DESCRIBED, AND APPLICATIONS OF THE MODEL ARE MADE.
REPORTS AND PUBLICATIONS
   TEMPLE, GEORGE S. 1978.  A DYNAMIC ECONOMIC SYSTEMS COMMUNITY
   IMPACT MODEL APPLIED TO COAL DEVELOPMENT IN THE NORTHERN
   GREAT PLAINS.
   TEMPLE, GEORGE S. 1979.  THE SPATIAL AND TEMPORAL DISTRI-
   BUTION OF SERVICE ACTIVITIES AMONG SMALL RURAL AREAS.
   BENDER, LLOYD D. 1979.  ESTIMATING EMPLOYMENT, LABOR
   FORCE PARTICIPATION AND MIGRATION.
PUBLICATIONS ADDRESS
   U. S. EPA
   MONTANA STATE UNIV.


00001499
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PROJECT TITLE
   STATE AND LOCAL REVENUES GENERATED BY COAL DEVELOPMENT
   IN THE NORTHERN PLAINS
SOURCE NUMBER
   EPA IAG NO. D 8-3766
INVESTIGATOR(S)
   LLOYD D. BENDER (MONTANA STATE UNIV.)
   LARRY C. PARCELS
   GEORGE S. TEMPLE
   THOMAS F. STINSON
   STANLEY W. VOELKER
RESEARCH INSTITUTION
   U. S. DEPT. OF AG., ECONOMIC DEVELOPMENT DIV.
   500 12TH ST. SW
   WASHINGTON, D.C. 20250
COOPERATOR
   MONTANA STATE UNIV., DEPT. OF AG. ECONOMICS & ECONOMICS
   BOZEMAN, MT 59717
PRIMARY SPONSOR
   U. S. EPA
   OEET, OFFICE OF RESEARCH & DEVELOPMENT
   RD 681 / WASHINGTON, D.C. 20460
SECONDARY SPONSOR
   U. S. DEPT. OF AG., ECONOMIC DEVELOPMENT DIV.
   NORTH DAKOTA STATE UNIV.
   UNIV. OF MINNESOTA
PRIMARY FUNDING AMOUNT
   NOT AVAILABLE
TIME FRAME
   OCT. 1975 TO SEPT. 1981
LOCATION
   NORTHERN GREAT PLAINS; MT - ND - WY
ABSTRACT
   MODELS OF MINES ARE USED TO EVALUATE STATE AND LOCAL
   REVENUES AND INTERGOVERNMENTAL TRANSFERS IN MONTANA, NORTH
   DAKOTA AND WYOMING.  DETAILS OF MINE MODELS AND
   DIFFERENCES DUE TO MINE SIZE ARE DESCRIBED.  THE NORTH
   DAKOTA SYSTEM DEPENDS GREATLY ON INTERGOVERNMENTAL TRANSFERS
   WHILE THE WYOMING SYSTEM EMPHASIZES LOCAL TAXES.  THE
   INCIDENCE OF TAXES ON COAL MINES MUST BE EVALUATED USING
   THE COMPLETE SYSTEMS IN EACH STATE BECAUSE OF THESE VARIATIONS
REPORTS AND PUBLICATIONS
   STINSON, THOMAS F. AND S. W. VOELKER. 1978. COAL DEVEL-
   OPMENT IN THE NORTHERN GREAT PLAINS: THE IMPACT ON
   REVENUES OF STATE AND LOCAL GOVERNMENTS.
   STINSON, THOMAS F. 1977. INTRODUCTION TO MINETX
   VOELKER, STANLEY W. AND THOMAS F. STINSON. 1979. TAXATION
   OF LIGNITE MINING IN MONTANA AND NORTH DAKOTA.
PUBLICATIONS ADDRESS
   NORTH DAKOTA STATE UNIV., FARGO, ND
   UNIV. OF MINNESOTA, ST. PAUL, MN


00001500
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PROJECT TITLE
   STATE AND LOCAL TAXATION OF COAL AND ENERGY DEVELOPMENTS
   IN THE NORTHERN PLAINS
SOURCE NUMBER
   EPA IAG NO. D 8-E766
INVESTIGATOR(S)
   LLOYD D. BENDER (MONTANA STATE UNIV.)
   LAYTON S. THOMPSON
   LARRY C. PARCELS
   GEORGE S. TEMPLE
   THOMAS F. STINSON
   STANLEY W. VOELKER
RESEARCH INSTITUTION
   U. S. DEPT. OF AG., ECONOMIC DEVELOPMENT DIV.
   500 12TH ST. SW
   WASHINGTON, D.C. 20250
COOPERATOR
   MONTANA STATE UNIV., DEPT. OF AG ECONOMICS & ECONOMICS
   BOZEMAN, MT 59717
PRIMARY SPONSOR
   U. S. EPA
   OEET, OFFICE OF RESEARCH & DEVELOPMENT
   RD 681 / WASHINGTON, D.C. 20460
SECONDARY SPONSOR
   NORTH DAKOTA STATE UNIV.
   UNIV. OF MINNESOTA
   U. S. DEPT. OF AG., ECONOMIC DEVELOPMENT DIV.
PRIMARY FUNDING AMOUNT
   NOT AVAILABLE
TIME FRAME
   NOV. 1975 TO SEPT. 1981
LOCATION
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NORTHERN GREAT PLAINS: MT - WY - ND

ABSTRACT
STRUCTURES OF TAX SYSTEMS IN EACH STATE ARE DESCRIBED IN DETAIL AS OF PUBLICATION DATE.

REPORTS AND PUBLICATIONS
THOMPSON, LAYTON S. AND W. D. SCHULTZ. 1978. THE TAXATION AND REVENUE SYSTEMS IN WYOMING.
THOMPSON, LAYTON S. 1978. THE TAXATION & REVENUE SYSTEMS OF STATE & LOCAL GOVERNMENT IN MONTANA.
VOELKER, STANLEY W., F. R. TAYLOR & T. K. OSTENSON. 1978. THE TAXATION & REVENUE SYSTEM OF STATE & LOCAL GOVERNMENTS IN NORTH DAKOTA (REVISED).
STINSON, THOMAS F. 1978. STATE TAXATION OF MINERAL DEPOSITS & PRODUCTION.

PUBLICATIONS ADDRESS
MONTANA AGRICULTURAL EXPERIMENT STATION, BOZEMAN, MT
WYOMING AGRICULTURAL EXPERIMENT STATION, LARAMIE, WY
NORTH DAKOTA AGRICULTURAL EXPERIMENT STATION, FARGO, ND

00001501

PROJECT TITLE
OLD WEST REGION COAL LINKAGES STUDY

SOURCE NUMBER
10971201

INVESTIGATOR(S)
JAMES R. MOORE / JACK TOMASIK / MICHAEL YORK

RESEARCH INSTITUTION
MOUNTAIN WEST RESEARCH, INC.
512 NO. 29TH ST
BILLINGS, MT 59101

PRIMARY SPONSOR
OLD WEST REGIONAL COMMISSION
201 MAIN, SUITE D
RAPID CITY, SD 57701

PRIMARY FUNDING AMOUNT
86,000

TIME FRAME
MAY 1979 TO APRIL 1980

LOCATION
MT - ND - SD - WY - NE

ABSTRACT
RECENT RAPID INCREASES IN COAL EXTRACTION, CONVERSION AND TRANSPORTATION IN THE OLD WEST REGION AND PROSPECTIVE FUTURE INCREASES HAVE CREATED A SIGNIFICANT NEW MARKET FOR GOODS AND SERVICES NEEDED IN BOTH THE CONSTRUCTION AND OPERATING PHASES OF THESE INDUSTRIES. THIS MARKET REPRESENTS A SIGNIFICANT OPPORTUNITY FOR ECONOMIC DIVERSIFICATION WITHIN THE OLD WEST REGION. THE GOALS OF THIS STUDY ARE TO: 1) GAIN A THOROUGH UNDERSTANDING OF BOTH THE COAL INDUSTRY AND THE INDUSTRIES THAT SUPPLY GOODS AND SERVICES TO IT; AND 2) FROM THIS UNDERSTANDING IDENTIFY NEW INDUSTRIES OR ECONOMIC ACTIVITIES FOR WHICH FAVORABLE POTENTIAL BENEFITS EXIST FROM A LOCATION IN ONE OR MORE OF THE OLD WEST STATES.

00001502

PROJECT TITLE
THE 1978 SOCIOECONOMIC MONITORING REPORT FOR THE BLACK THUNDER COAL MINE, CAMPBELL CO., WYOMING

SOURCE NUMBER
79-82

INVESTIGATOR(S)
EDWARD F. HARVEY

RESEARCH INSTITUTION
BICKERT, BROWNE, CODDINGTON & ASSOCIATES, INC.
100 SOUTH MADISON
DENVER, CO 80209

PRIMARY SPONSOR
ATLANTIC-RICHFIELD CO.
P. O. BOX 5300
DENVER, CO 80217

PRIMARY FUNDING AMOUNT
5,000

TIME FRAME
MAY 1979 TO AUG. 1979

LOCATION
WY - CAMPBELL CO.: BLACK THUNDER MINE

ABSTRACT
THIS REPORT IS THE SECOND IN A SERIES OF REPORTS INTENDED TO MONITOR SOCIOECONOMIC CONDITIONS IN THE BLACK THUNDER MINE'S SOCIOECONOMIC IMPACT AREA. THE REPORT WILL EMPHASIZE A POSSIBLE HOUSING SHORTFALL, AND WILL EVALUATE THE PRESENT AND FUTURE MITIGATION PROGRAMS.

REPORTS AND PUBLICATIONS
NOT AVAILABLE.

00001503

PROJECT TITLE
SOCIOECONOMIC COMPONENT, ROCHELLE MINE, CAMPBELL COUNTY, WYOMING.

SOURCE NUMBER
78-209

INVESTIGATOR(S)
EDWARD F. HARVEY
FORD C. FRICK

RESEARCH INSTITUTION
BICKERT, BROWNE, CODDINGTON & ASSOCIATES, INC.
100 SOUTH MADISON

DENVER, CO 80209
PRIMARY SPONSOR
PEABODY COAL CO.
12075 E. 45TH AVE., #203
DENVER, CO 80239
PRIMARY FUNDING AMOUNT
42,720
TIME FRAME
DEC. 1978 TO NOV. 1979
LOCATION
WY - CAMPBELL CO.: ROCHELLE MINE
ABSTRACT

THE FINAL REPORT WILL INCLUDE INFORMATION ON THE SOCIOECONOMIC IMPACTS OF THE ROCHELLE MINE. IMPACTS ON EMPLOYMENT, POPULATION, HOUSING, INCOME, RETAIL SALES, STUDENT ENROLLMENT, AND PUBLIC FACILITIES AND SERVICES WILL BE EVALUATED. IN ADDITION, THE REPORT WILL INCLUDE A PUBLIC SECTOR FINANCIAL ANALYSIS FOCUSING ON THE OPERATING REVENUES AND EXPENDITURES OF EACH POLITICAL JURISDICTION WITHIN THE SOCIOECONOMIC IMPACT AREA.

REPORTS AND PUBLICATIONS
NOT AVAILABLE

00001504

PROJECT TITLE
A SOCIOECONOMIC IMPACT MITIGATION STRATEGY FOR MOBIL'S ROJO CABALLOS MINE.
SOURCE NUMBER
78-175
INVESTIGATOR(S)
EDWARD F. HARVEY
RESEARCH INSTITUTION
BICKERT, BROWNE, CODDINGTON & ASSOCIATES, INC.
100 SOUTH MADISON
DENVER, CO 80209
PRIMARY SPONSOR
MOBIL OIL CORP.
P. O. BOX 5444
DENVER, CO 80217
SECONDARY SPONSOR
22,600
TIME FRAME
SEPT. 1978 TO MARCH 1979
LOCATION
WY - CAMPBELL CO.: ROJO CABALLOS MINE
ABSTRACT

THIS REPORT DETAILS THE SOCIOECONOMIC IMPACTS STEMMING FROM THE ROJO CABALLOS DEVELOPMENT AND DEVELOPS A COMPREHENSIVE MITIGATION APPROACH TO THE IMPACTS. THE DEVELOPMENT OF THE MITIGATION STRATEGY INVOLVED THE ASSESSMENT OF PREVIOUS IMPACT ALLEVIATION EFFORTS UNDERTAKEN BY MOBIL AND OTHER COMPANIES, AS WELL AS BY THE FEDERAL, STATE, AND LOCAL GOVERNMENTS.

PUBLICATIONS ADDRESS
NOT AVAILABLE

00001505

PROJECT TITLE
WYOMING INDUSTRIAL SITING APPLICATION FOR THE ROJO CABALLOS MINE - CHAPTER VI: SOCIAL AND ECONOMIC EFFECTS OF FACILITY CONSTRUCTION AND OPERATION
SOURCE NUMBER
79-41
INVESTIGATOR(S)
EDWARD F. HARVEY / FORD C. FRICK
RESEARCH INSTITUTION
BICKERT, BROWNE, CODDINGTON & ASSOCIATES, INC.
100 SOUTH MADISON
DENVER, CO 80209
PRIMARY SPONSOR
MOBIL OIL CORP.
P. O. BOX 5444
DENVER, CO 80217
PRIMARY FUNDING AMOUNT
36,620
TIME FRAME
MARCH 1979 TO AUGUST 1979
LOCATION
WY - CAMPBELL CO.: ROJO CABALLOS MINE
ABSTRACT

CHAPTER VI OF THE SITING APPLICATION WILL INCLUDE: AN EXAMINATION OF COMMUTING AND MIGRATION PATTERNS; AN UPDATE OF CURRENT DEMOGRAPHIC AND ECONOMIC DATA; DEVELOPMENT OF EMPLOYMENT, POPULATION, AND HOUSEHOLD MULTIPLIERS; AN UPDATE OF BASELINE ENERGY-RELATED DEVELOPMENTS; EVALUATION OF LOCAL PUBLIC FACILITIES AND SERVICES IN TERMS OF PRESENT AND FUTURE ADEQUACY; AND UPDATE OF CURRENT AND FUTURE LOCAL HOUSING MARKET CONDITIONS; IDENTIFICATION OF ROJO CABALLOS IMPACTS; AND THE DEVELOPMENT OF A PUBLIC SECTOR FINANCIAL ANALYSIS WHICH WILL INCLUDE CAPITAL OUTLAY REQUIREMENTS BY JURISDICTION.

PUBLICATIONS ADDRESS
NOT AVAILABLE

00001506

PROJECT TITLE

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   A SUPPLEMENTAL SOCIOECONOMIC ASSESSMENT OF THE EAST
   GILLETTE MINE
SOURCE NUMBER
   10975097
INVESTIGATOR(S)
   JAMES G. THOMPSON
RESEARCH INSTITUTION
   WYOMING RESEARCH CORP.
   1050 N. THIRD ST., UNIT C SUITE N
   LARAMIE, WY 82070
COOPERATOR
   OLD WEST REGIONAL COMMISSION
   228 HEDDEN EMPIRE BLDG.
   BILLINGS, MT 59101
PRIMARY SPONSOR
   U. S. GEOLOGICAL SURVEY
PRIMARY FUNDING AMOUNT
   11,933
TIME FRAME
   JUNE 1979 TO AUG. 1979
LOCATION
   WY - CAMPBELL CO.; EAST GILLETTE MINE
ABSTRACT
   IN ASSESSING THE EAST GILLETTE MINE, THE GOALS OF THIS
   PROJECT ARE: 1) TO CONDUCT AN EXPANDED COMMUNITY INFRA-
   STRUCTURE ASSESSMENT; 2) TO ANALYZE SOCIAL CHANGE; AND
   3) TO ASSESS ADDITIONAL MITIGATING STRATEGIES.  THIS IS
   A U. S. G. S. PROJECT.
PUBLICATIONS ADDRESS
   A FINAL REPORT IS AVAILABLE FROM
   U. S. GEOLOGICAL SURVEY



00001507
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PROJECT TITLE
   A SOCIOECONOMIC ASSESSMENT OF THE NORTH ANTELOPE MINE.
SOURCE NUMBER
   10975226
INVESTIGATOR(S)
   JAMES G. THOMPSON
RESEARCH INSTITUTION
   WYOMING RESEARCH CORP.
   1050 N. 3RD ST. UNIC C SUITE N
   LARAMIE WY 82070
COOPERATOR
   OLD WEST REGIONAL COMMISSION
   228 HEDDEN-EMPIRE BLDG
   BILLINGS, MT 59101
PRIMARY SPONSOR
   U. S. GEOLOGIC SURVEY
PRIMARY FUNDING AMOUNT
   29,018
TIME FRAME
   AUG. 1979 TO NOV. 1979
LOCATION
   WY - CAMPBELL CO.; NORTH ANTELOPE MINE
ABSTRACT
   THE PURPOSE OF THIS STUDY IS TO DO A SOCIOECONOMIC ANALYSIS
   DESIGNED TO PROVIDE ASSESSMENT TO BE UTILIZED IN
   PREPARATION OF AN EIS FOR THE NORTH ANTELOPE MINE IN
   CAMPBELL CO WYOMING.  THE GOALS OF THE PROJECT ARE: 1)
   TO CONDUCT AN EXPANDED COMMUNITY INFRASTRUCTURE ASSESSMENT;
   2) TO ANALYZE SOCIAL CHANGE; AND 3) TO ASSESS ADDITIONAL
   MITIGATING STRATEGIES.



00001508
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PROJECT TITLE
   DATA BOOK AND PLAN FOR ROSEBUD COUNTY
RESEARCH INSTITUTION
   CUMIN ASSOCIATES
   528 GRAND
   BILLINGS, MT
COOPERATOR
   WIRTH ASSOCIATES / BILLINGS, MT
   MOUNTAIN WEST RESEARCH, INC. / BILLINGS, MT
PRIMARY SPONSOR
   ROSEBUD COUNTY PLANNING BOARD
   FORSEYTH, MT 59327
SECONDARY SPONSOR
   MONTANA DEPT. OF COMMUNITY AFFAIRS, MONTANA COAL BOARD
   U. S. DEPT. OF HOUSING & URBAN DEVELOPMENT
   OLD WEST REGIONAL COMMISSION
PRIMARY FUNDING AMOUNT
   21,000
SECONDARY FUNDING AMOUNT
   54,000
TIME FRAME
   JAN. 1974 TO APRIL 1979
LOCATION
   MT - ROSEBUD CO.; ASHLAND, BIRNEY, COLSTRIP, FORSYTH.
ABSTRACT
   PREVIOUS AND POTENTIAL LEVELS OF GROWTH IN ROSEBUD COUNTY
   REQUIRE THAT THE PLANNING BOARD, GOVERNING BODIES, AND
   GENERAL PUBLIC BE CONTINUALLY INVOLVED IN THE PLANNING
   PROCESS TO INSURE THAT THE DESIRES AND OPINIONS OF THE
   COMMUNITY AT LARGE ARE REFLECTED.  THE GROWTH IN THE
   COUNTY IS VISIBLE IN THREE MAIN INDICATORS:  AN INCREASE IN
   POPULATION IN CERTAIN GEOGRAPHIC NODES WITHIN THE COUNTY;
   CHANGES IN EXISTING LAND USE PATTERNS; AND EXPANSION OF
   THE ENERGY DEVELOPMENT SECTOR OF THE AREA'S ECONOMY.
   THESE THREE GROWTH INDICATORS INTERACT; EXPANSION OF
   THE ENERGY DEVELOPMENT SECTOR HAS ATTRACTED INCREASED
   POPULATION WHICH, IN TURN, HAS ALTERED TRADITIONAL LAND
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USE PATTERNS. IT IS THROUGH USE OF THE STATUTORILY PERMITTED LAND USE CONTROLS OR TOOLS, SUBDIVISION REGULATIONS AND ZONING, THAT THE PLANNING BOARD AND GOVERNING BODIES CAN AFFECT THE LAND USE PATTERNS WITHIN THE COUNTY. HOWEVER, IN ORDER TO BE ABLE TO FULLY IMPLEMENT THESE TOOLS, THEY MUST BE BASED ON A CITY COUNCIL OR COUNTY COMMISSION-ADOPTED LAND USE PLAN. TO AID THE PLANNING BOARD AND GOVERNING BODIES IN THEIR DECISIONS, AND TO MEET THE REQUIREMENTS IMPOSED BY THE STATE LEGISLATURE, FUTURE LAND USE PLANS HAVE BEEN PREPARED WHICH DEPICT A SOUND, FUTURE LAND USE PATTERN FOR FOUR OF THE COMMUNITIES IN THE COUNTY: ASHLAND, BIRNEY, COLSTRIP AND FORSYTH. THE LAND USE PLANS ARE INTENDED TO PROVIDE A GUIDE FOR THE HARMONIOUS DISTRIBUTION OF THE FOUR BASIC LAND USES (RESIDENTIAL, COMMERCIAL, INDUSTRIAL, AND AGRICULTURAL/OPEN SPACE) AND INDICATE THE RELATIONSHIP THAT EACH OF THE USES HAS TO THE FUTURE GROWTH OF THE COMMUNITY.

00001S09

PROJECT TITLE
TREASURE COUNTY PLANNING DATA BOOK AND COMPREHENSIVE PLAN, 1979.
INVESTIGATOR(S)
L. JOHN MACMARTIN / DOUGLAS S. HART
RESEARCH INSTITUTION
CUMIN ASSOCIATES
P. O. BOX 20762
BILLINGS, MT 59104
PRIMARY SPONSOR
MONTANA DEPT. OF COMMUNITY AFFAIRS, MONTANA COAL BOARD
CAPITOL STATION
HELENA, MT 59601
SECONDARY SPONSOR
TREASURE COUNTY COMMISSION
HYSHAM, MT 59038
PRIMARY FUNDING AMOUNT
17,000
SECONDARY FUNDING AMOUNT
2,500
TIME FRAME
OCT. 1978 TO JUNE 1979
LOCATION
MT - TREASURE CO.
ABSTRACT

THE TREASURE COUNTY PLANNING DATA BOOK AND COMPREHENSIVE PLAN WAS PREPARED TO PROVIDE THE PLANNING BOARD, COUNTY COMMISSIONERS, AND LOCAL GOVERNMENT WITH BASE DATA WHICH WOULD ASSIST THEM IN MANAGING GROWTH. THE DATA BOOK IS DIVIDED INTO SIX CHAPTERS: CHAPTER ONE DETAILS THE PHYSICAL SETTING AND THE LAND USE OF THE COUNTY; CHAPTER TWO DISCUSSES THE SOCIO-ECONOMIC SITUATION, BOTH CURRENT AND PROJECTED; CHAPTER THREE IS A SYNOPSIS OF THE NATURAL RESOURCES OF THE COUNTY; CHAPTER FOUR DISCUSSES THE HOUSING SITUATION; CHAPTER FIVE IS AN EVALUATION OF THE PUBLIC FACILITIES AND SERVICES; CHAPTER SIX IS AN ANALYSIS OF THE FISCAL STRUCTURE OF THE COUNTY.

REPORTS AND PUBLICATIONS
CUMIN ASSOCIATES. 1979. PLANNING DATA BOOK AND COMPREHENSIVE PLAN, TREASURE COUNTY, MONTANA.
PUBLICATIONS ADDRESS
CUMIN ASSOCIATES
P. O. BOX 20762 / BILLINGS, MT 59104

00001S10

PROJECT TITLE
CITY OF BEACH, NORTH DAKOTA - COMPREHENSIVE PLAN AND BACKGROUND REPORT
INVESTIGATOR(S)
HAROLD FELDHUSEN
RESEARCH INSTITUTION
ROOSEVELT-CUSTER REGIONAL COUNCIL
PULVER HALL
DICKINSON, ND 58601
PRIMARY SPONSOR
BEACH, ND
SECONDARY SPONSOR
OLD WEST REGIONAL COMMISSION
PRIMARY FUNDING AMOUNT
NOT AVAILABLE
TIME FRAME
MAY 1977 TO JUNE 1979
LOCATION
ND - GOLDEN VALLEY CO.; BEACH
ABSTRACT

AS A PRELUDE TO STATED ENERGY INTERESTS IN THE COAL AND OIL RESERVES OF THE COUNTY, THE BEACH CITY COUNCIL DEVELOPED A THOROUGH BACKGROUND REPORT OF THE CITY. BASED ON INFORMATION COMPILED IN THE REPORT, DISCUSSIONS WITH PUBLIC OFFICIALS AND BUSINESS INTERESTS, AND A SERIES OF PUBLIC MEETINGS, A COMPREHENSIVE PLAN WAS DEVELOPED FOR THE CITY TO GUIDE FUTURE GROWTH AND PROVIDE A FRAMEWORK FOR GROWTH MANAGEMENT DECISIONS. THIS PLAN WAS ALSO DEVELOPED AT A TIME THAT THE BUREAU OF LAND MANAGEMENT WAS INITIATING THEIR OWN MANAGEMENT FRAMEWORK PLAN FOR FEDERAL COAL HOLDINGS IN THE AREA.

REPORTS AND PUBLICATIONS
BEACH CITY COUNCIL. 1979. CITY BACKGROUND REPORT AND CITY COMPREHENSIVE PLAN
PUBLICATIONS ADDRESS
CITY AUDITOR
BEACH, ND 58621

00001511

PROJECT TITLE
GOLDEN VALLEY COUNTY COMPREHENSIVE PLAN AND BACKGROUND REPORT
INVESTIGATOR(S)
KEITH FARSTEET
GOLDEN VALLEY CO. COMMISSION
BEACH, ND 58621
RESEARCH INSTITUTION
ROOSEVELT-CUSTER REGIONAL COUNCIL
PULVER HALL
DICKINSON, ND 58601
PRIMARY SPONSOR
GOLDEN VALLEY COUNTY
BEACH, ND 58621
SECONDARY SPONSOR
OLD WEST REGIONAL COMMISSION
PRIMARY FUNDING AMOUNT
NOT AVAILABLE
TIME FRAME
MARCH 1977 TO JUNE 1979
LOCATION
ND - GOLDEN VALLEY CO.
ABSTRACT

AS A PRELUDE TO STATED ENERGY INTERESTS IN THE COAL AND OIL RESERVES OF THE COUNTY, THE GOLDEN VALLEY COUNTY COMMISSION DEVELOPED A THOROUGH BACKGROUND REPORT OF THE COUNTY. BASED ON INFORMATION COMPILED IN THAT REPORT, DISCUSSIONS WITH PUBLIC OFFICIALS AND BUSINESS INTERESTS, AND A SERIES OF PUBLIC MEETINGS, A COMPREHENSIVE PLAN WAS DEVELOPED FOR THE COUNTY TO GUIDE FUTURE GROWTH AND PROVIDE A FRAMEWORK FOR GROWTH MANAGEMENT DECISIONS.

00001512

PROJECT TITLE
WILLISTON BASIN COMMUNITY SERVICES PROJECT
SOURCE NUMBER
10073021
INVESTIGATOR(S)
TRACY CALUSEN
RESEARCH INSTITUTION
WILLISTON BASIN REGIONAL COUNCIL FOR DEVELOPMENT
512 4TH AVE. EAST
WILLISTON, ND 58801
PRIMARY SPONSOR
OLD WEST REGIONAL COMMISSION
201 MAIN ST. SUITE C
RAPID CITY, SD 57701
PRIMARY FUNDING AMOUNT
1,598
TIME FRAME
OCT. 1979 TO SEPT. 1980
LOCATION
ND - WILLIAMS CO.; MCKENZIE CO.
ABSTRACT

THE PURPOSE OF THE PROJECT IS TO PREPARE FOR, MONITOR, AND CONTROL NEGATIVE ENERGY DEVELOPMENT IMPACT ON HUMAN SERVICES. THE OBJECTIVES ARE: 1) TO DEVELOP BETTER INFORMATION ON AND UNDERSTANDING OF THE RELATIONSHIP BETWEEN COMMUNITY SERVICES AND ENERGY DEVELOPMENT; 2) TO BRING A GREATER PUBLIC AWARENESS TO AND INVOLVEMENT IN THE HUMAN PROBLEMS IN RELATION TO ENERGY DEVELOPMENT; 3) TO BEGIN TO DEVELOP A COMPREHENSIVE PLANNING CAPABILITY IN THE AREA OF HUMAN SERVICES; 4) TO DEVELOP EXPERIENCE IN INTERAGENCY COOPERATIVE PLANNING AND PROBLEM SOLVING; AND 5) TO DEVELOP AND PROMOTE PREVENTIVE MEASURES AND PROGRAMS FOR COMMUNITY SERVICES.

00001513

PROJECT TITLE
PLANNING AND RESEARCH FOR THE WESTERN INSTITUTE ON IMPACT AND HUMAN SERVICES
SOURCE NUMBER
10975253
INVESTIGATOR(S)
JUDITH CAVENPORT
RESEARCH INSTITUTION
UNIV. OF WYOMING
WYOMING HUMAN SERVICES PROJECT
MERICA HALL 207 / LARAMIE WY 82017
PRIMARY SPONSOR
OLD WEST REGIONAL COMMISSION
201 MAIN ST. SUITE D
RAPID CITY, SD 57701
PRIMARY FUNDING AMOUNT
31,864
TIME FRAME
SEPT. 1979 TO SEPT. 1980
LOCATION
MT - WY - ND - SD - NE
ABSTRACT

THE OBJECTIVES ARE: 1) TO MITIGATE THE HUMAN PROBLEMS CREATED OR EXACERBATED BY THE RAPID DEVELOPMENT OF ENERGY RESOURCES; 2) TO DETERMINE HOW BEST TO TRAIN AND USE HUMAN SERVICE PERSONNEL TO SOLVE THE "PEOPLE PROBLEMS" WHICH INEVITABLY ACCOMPANY THE RAPID SOCIAL CHANGE FOUND IN COMMUNITIES UNDERGOING IMPACT; AND 3) TO DERIVE GUIDELINES AND SUGGESTIONS FOR OTHER COMMUNITIES IN SIMILAR SITUATIONS ABOUT HOW TO MOST EFFECTIVELY COPE WITH HUMAN SERVICE PROBLEMS.

00001514

PROJECT TITLE
ENERGY RESOURCES AND ENVIRONMENTAL STUDIES TRAINING PROGRAM FOR DAKOTA TRIBES
INVESTIGATOR(S)
DR. ROY CAMERON
RESEARCH INSTITUTION
U. S. DEPT. OF ENERGY, ARGONNE NATIONAL LAB.
9800 SOUTH CASS AVE.
ARGONNE, IL 60439
PRIMARY SPONSOR
OLD WEST REGIONAL COMMISSION
228 HEDDEN EMPIRE BLDG
BILLINGS MT 59101
SECONDARY SPONSOR
U. S. DEPT. OF ENERGY, ARGONNE NATIONAL LAB.
PRIMARY FUNDING AMOUNT
70,366
SECONDARY FUNDING AMOUNT
73,705
TIME FRAME
JUNE 1979 TO DEC. 1979
LOCATION
NATIONWIDE APPLICABILITY
ABSTRACT

THIS PROJECT IS AN ATTEMPT TO MEET THE OVERALL NEEDS AND CONCERNS OF INDIAN PEOPLE REGARDING ENERGY DEVELOPMENT AND THEIR LANDS. THIS WILL BE DONE THROUGH TWO SIX-WEEK EDUCATION PROGRAMS. THIS PROJECT IS A CONTINUATION OF AN ON-GOING PROGRAM THAT RELATES TO ALL RESERVATIONS IN THE U. S. THAT ARE IN NEED OF THIS TYPE OF TRAINING.

REPORTS AND PUBLICATIONS
A FINAL REPORT IS ANTICIPATED.

00001515

PROJECT TITLE
WESTERN COAL PLANNING ASSISTANCE PROJECT
INVESTIGATOR(S)
GERALD R. ZIMMERMAN
ARTHUR GREENBERG
PHASE II OF THE PROJECT, TO BE CONDUCTED DURING FISCAL YEARS
RESEARCH INSTITUTION
MISSOURI RIVER BASIN COMMISSION
10050 REGENCY CIRCLE, SUITE 403
OMAHA, NE 68114
COOPERATOR
MOUNTAIN WEST RESEARCH, INC. / BILLINGS, MT
ABT ASSOCIATES, INC. / ENGLEWOOD, CO
PRIMARY SPONSOR
U. S. GEOLOGICAL SURVEY, RESOURCE & LAND INVESTIGATIONS
NATIONAL CENTER (MS750)
RESTON, VA 22092
PRIMARY FUNDING AMOUNT
560,000
TIME FRAME
OCT. 1977 TO MAY 1980
LOCATION
MT - WY - ND - SD - NE - CO - IA - MN - KS
YELLOWSTONE RIVER BASIN - MISSOURI RIVER BASIN
ABSTRACT

PHASE I OF THE WESTERN COAL PLANNING ASSISTANCE PROJECT (WCPAP), WAS DESIGNED TO ASSIST LOCAL AND STATE CITIZENS DEVELOP TECHNICAL METHODS AND INFORMATION NEEDED TO COPE WITH PROBLEMS ASSOCIATED WITH COAL/ENERGY DEVELOPMENT OR NONDEVELOPMENT. THE PHASE I PROJECT AREA FOCUSED ON THE COAL AND LIGNITE AREAS OF THE YELLOWSTONE RIVER BASIN AND ADJACENT COAL AREAS OF MONTANA, WYOMING, AND NORTH DAKOTA. TWO MAJOR WORK ELEMENTS OF PHASE I WERE: 1) PROVIDING A SURVEY OF PLANNING PROBLEMS AND NEEDS ASSOCIATEDWITH COAL RESOURCE DEVELOPMENT IN THE THREE STATES AND 2) PREPARING A PLANNING REFERENCE SYSTEM FOR PLANNERS AND DECISIONMAKERS. FOUR DOCUMENTS HAVE BEEN PREPARED AS PART OF THE PLANNING REFERENCE SYSTEM. EACH OF THESE DOCUMENTS PROVIDES BASIC INFORMATION ASSOCIATED WITH THE COAL RESOURCE AND ITS UTILIZATION. WHILE EACH PROVIDE A COMPLIMENTARY SYSTEM WHICH CAN BE USED BY PLANNERS AND DECISIONMAKERS ESPECIALLY AT THE LOCAL LEVEL, TO ASSESS AND PLAN FOR COAL RESOURCE DEVELOPMENT AND RELATED IMPACTS. A PROBLEMS AND NEEDS SURVEY WAS UNDERTAKEN TO IDENTIFY PLANNING INFORMATION AND ASSISTANCE PROBLEMS AND NEEDS IN THE THREE STATE AREA. APPROXIMATELY 250 PLANNERS AND DECISIONMAKERS PARTICIPATED IN ONE OR MORE ASPECTS OF THE SURVEY. RESULTS ARE PRESENTED IN THE FINAL REPORT. WORKSHOPS HELD IN MILES CITY, MONTANA, SHERIDAN, WYOMING, AND BISMARCK, NORTH DAKOTA DURING NOVEMBER 1978 CULMINATED THE MAJOR ACTIVITIES ASSOCIATED WITH PREPARATION OF THE PLANNING REFERENCE SYSTEM AND POROBLEMS AND NEEDS SURVEY. 1979 AND 1980, WILL FOCUS ON ADDRESSING RESULTS AND RECOMMENDATIONS CONTAINED IN PRODUCTS PREPARED DURING PHASE I AND WILL CONTINUE TO JOINTLY ASSIST LOCAL, STATE, REGIONAL, AND FEDERAL PLANNERS AND RESOURCE DECISIONMAKERS BY DEVELOPING THE ANALYTICAL AND TECHNICAL METHODS AND CAPABILITIES TO ADDRESS THE PROBLEMS AND ISSUES ASSOCIATED WITH COAL/ENERGY DEVELOPMENT OR NONDEVELOPMENT OPPORTUNITIES. THE PROJECT AREA HAS BEEN EXPANDED TO COVER THE ENTIRE MISSOURI RIVER BASIN. ACTIVITIES WILL INCLUDE: (1) TRAINING AREA PLANNERS IN THE USE OF THE PLANNING REFERENCE SYSTEM; (2) MAINTAINING AND SUPPLEMENTING THE PLANNING REFERENCE SYSTEM; (3) TRANSFERRING THE RESULTS OF PHASE I TO OTHER AREAS OF THE MISSOURI RIVER BASIN AND THE NATION; AND (4) IMPLEMENTING SOME OF THE SPECIFIC ACTIVITIES RECOMMENDED AS A PART OF PHASE I.

REPORTS AND PUBLICATIONS
MRBC AND RALI, 1979. FORECASTS FOR WESTERN COAL/ENERGY

DEVELOPMENT. / FACT BOOK FOR WESTERN COAL/ENERGY DEVELOPMENT / A GUIDE TO METHODS FOR IMPACT ASSESSMENT OF WESTERN COAL/ENERGY DEVELOPMENT / THE SOURCE BOOK FOR WESTERN COAL/ENERGY DEVELOPMENT / FINAL REPORT FOR PHASE I OF THE WESTERN COAL PLANNING ASSISTANCE PROJECT / WORKSHOP DOCUMENT FOR THE WESTERN COAL PLANNING ASSISTANCE PROJECT.

PUBLICATIONS ADDRESS
A LIMITED NUMBER OF REPORTS ARE AVAILABLE FROM:
MISSOURI RIVER BASIN COMMISSION
10050 REGENCY CIRCLE SUITE 403 / OMAHA, NE 68114

00001516

PROJECT TITLE
PLATTE COUNTY HEALTH NEEDS ASSESSMENT

INVESTIGATOR(S)
JAMES G. THOMPSON
WYOMING RESEARCH CORP.
LARAMIE, WY 82070

RESEARCH INSTITUTION
UNIV. OF WYOMING, INST. OF ENERGY & ENV.
UNIV. STATION BOX 3965
LARAMIE, WY 82071

PRIMARY SPONSOR
UNIV. OF WYOMING, INST. OF ENERGY & ENV.
UNIV. STATION BOX 3965
LARAMIE, WY 82071

PRIMARY FUNDING AMOUNT
10,270

TIME FRAME
JAN. 1978 TO DEC. 1978

LOCATION
WY - PLATTE CO.; WHEATLAND, MISSOURI BASIN POWER PROJECT

ABSTRACT

PLANS FOR ALLEVIATING THE SOCIOECONOMIC IMPACTS OF CONSTRUCTING AND OPERATING THE MISSOURI BASIN POWER PROJECT'S 1500 MEGAWATT COAL FIRED GENERATING STATION IN WHEATLAND, WYOMING INCLUDED AN ASSESSMENT OF CERTAIN COMMUNITY NEEDS, INCLUDING HEALTH NEEDS. ASSESSMENT METHODOLOGIES WERE REVIEWED ALSO. THE RESEARCH GROUP FIRST COMPARED EXISTING HEALTH PERSONNEL, SERVICES, AND FACILITIES WITH ACCEPTED STANDARDS OR WYOMING AVERAGES. THE DIFFERENCES BETWEEN WHAT SERVICES OR FACILITIES EXISTED AND WHAT THE ACCEPTED STANDARDS WERE, WERE DEEMED THE "NEEDS". 634 HOUSEHOLDS IN PLATTE COUNTY WERE SURVEYED BY QUESTIONNAIRE FOR OPINIONS ABOUT MEDICAL FACILITIES AND SERVICES. RESULTS OF THE SURVEY ARE AVAILABLE ON REQUEST. THOMPSON FOUND THAT THE NEEDS EXPRESSED THROUGH QUESTIONNAIRES WERE LESS THAN THE NEEDS REVEALED BY COMPARING EXISTING FACILITIES WITH IDEAL STANDARDS. THE COMMUNITY'S REAL NEEDS ARE GREATER THAN THOSE EXPRESSED BY ITS RESIDENTS BECAUSE THE RESIDENTS TEND TO ACCEPT WHAT'S AVAILABLE AS SATISFACTORY. REAL HEALTH NEEDS WOULD APPEAR EVEN GREATER IF SOCIAL INDICATORS SUCH AS INFANT MORTALITY AND DEATH FROM CURABLE DISEASES WERE STUDIED.

REPORTS AND PUBLICATIONS
PLATTE COUNTY HEALTH NEEDS ASSESSMENT

PUBLICATIONS ADDRESS
UNIV. OF WYOMING, INST. OF ENERGY & ENV.
UNIV. STATION BOX 3065
LARAMIE, WY 82071

00001517

PROJECT TITLE
NATIONAL ENERGY DEVELOPMENT EDUCATION PROJECT

SOURCE NUMBER
G & C 041

INVESTIGATOR(S)
PATRICK C. JOBES
PAMELA DEE SAVATSKY (HARBRIDGE HOUSE)
DAVE OSTENDORF (RURAL AMERICA)

RESEARCH INSTITUTION
MONTANA STATE UNIV., DEPT. OF SOCIOLOGY
BOZEMAN, MT 59715

PRIMARY SPONSOR
U. S. DEPT. OF ENERGY

SECONDARY SPONSOR
HARBRIDGE HOUSE
RURAL AMERICA

PRIMARY FUNDING AMOUNT
20,000

SECONDARY FUNDING AMOUNT
100,000

TIME FRAME
JULY 1979 TO JUNE 1980

LOCATION
NATIONWIDE APPLICABILITY

ABSTRACT

THE OBJECTIVES OF THIS PROJECT ARE TO: 1) PREPARE A HANDBOOK AND CONDUCT WORKSHOPS ASSISTING RURAL COMMUNITIES TO EVALUATE POTENTIAL ENERGY DEVELOPMENT; AND 2) DEVELOP A CLEARING HOUSE RELATED TO ENERGY DEVELOPMENT FOR RURAL COMMUNITIES.

PUBLICATIONS ADDRESS
RURAL AMERICA
CONNECTICUTT AVENUE
WASHINGTON, D. C.

1.6 ENERGY CONVERSION & TRANSPORT

00001518

PROJECT TITLE
COAL SLURRY PIPELINES: PUBLIC ATTITUDES AND ISSUES POSITIONS, PHASE I
INVESTIGATOR(S)
DR. OLIVER WALTER
DR. KENYON N. GRIFFIN
RESEARCH INSTITUTION
UNIV. OF WYOMING, INST. FOR POLICY RESEARCH
P. O. BOX 3925
LARAMIE, WY 82002
PRIMARY SPONSOR
ENERGY TRANSPORTATION SYSTEMS, INC.
111 WEST SECOND STREET
CASPER, WY 82601
PRIMARY FUNDING AMOUNT
5,914
TIME FRAME
JUNE 1979 TO JULY 1979
LOCATION
WY
ABSTRACT
DEVELOP A MEDIA PROGRAM DESIGNED TO CHANGE WYOMING VOTER'S ATTITUDES ABOUT THE COAL SLURRY PIPELINE. PHASE I: PHONE INTERVIEWS.
PUBLICATIONS ADDRESS
UNIV. OF WYOMING INST. FOR POLICY RESEARCH
P. O. BOX 3925
LARAMIE, WY 82071

00001519

PROJECT TITLE
FORMULATION OF POLICIES FOR DEVELOPMENT OF SOLUTIONS TO REGIONAL COAL TRANSPORTATION PROBLEMS
SOURCE NUMBER
10971256
INVESTIGATOR(S)
BLAKE WORDALL
RON RICHARDS
MONTANA DEPT. OF HIGHWAYS
RESEARCH INSTITUTION
MONTANA OFFICE OF THE GOVERNOR
STATE CAPITOL BLDG.
HELENA, MT 596-1
PRIMARY SPONSOR
OLD WEST REGIONAL COMMISSION
228 HEDDEN-EMPIRE BLDG.
BILLINGS, MT
PRIMARY FUNDING AMOUNT
20,000
TIME FRAME
SEPT. 1979 TO SEPT. 1980
LOCATION
MT - SD - ND - NE - WY
ABSTRACT
WITHIN THE NEAR TERM FUTURE, THE DEVELOPMENT OF THE COAL RESOURCE IN THE OLD WEST REGION WILL INCREASE GEOMETRICALLY. THREE OF THE FIVE OLD WEST STATES HAVE MASSIVE COAL RESOURCES AND ALL FIVE STATES WILL CONTINUE TO ENCOUNTER THE SIGNIFICANT IMPACTS OF TRANSPORTING THOSE COAL RESOURCES TO POINTS OF USE. THE COMMISSION STATES ARE IN NEED OF THE PROFESSIONAL SERVICES TO ASSIST IN DEVELOPING AND FORMULATING POLICIES AND PROGRAMS DIRECTED TOWARD SOLUTION OF THE REGIONAL COAL TRANSPORTATION PROBLEMS. THE GRANTEE WILL CONCENTRATE ON IDENTIFYING THE PRIMARY COAL TRANSPORTATION IMPACTS AND MITIGATION OPTIONS AND THEN FORMULATE PROGRAMS AND POLICIES AIMED AT, AND ADDRESSED TO, THE SOLUTION OF SAID PROBLEMS. PRIMARY EMPHASIS WILL INCLUDE THE DEVELOPMENT OF A CONSULTATION MECHANISM WITH STATE OFFICIALS RESPONSIBLE FOR COAL TRANSPORTATION PLANNING AND GOVERNOR'S REPRESENTATIVES ON SUCH POLICY ISSUES

00001520

PROJECT TITLE
MAGNETOHYDRODYNAMIC INSTRUMENTATION AND DATA AQUISITION.
SOURCE NUMBER
26000-956
INVESTIGATOR(S)
DR. KENNETH MARCOTTE
ROY JOHNSON
RESEARCH INSTITUTION
MONTANA STATE UNIV., DEPT. OF ELECTRICAL ENG.
BOZEMAN, MT
COOPERATOR
MONTANA ENERGY & MHD RESEARCH & DEVELOPMENT INST./
P. O. BOX 3809
BUTTE, MT 59701
PRIMARY SPONSOR
U. S. DEPT. OF ENERGY, ERDA
PRIMARY FUNDING AMOUNT
428,000
TIME FRAME
OCT. 1978 TO SEPT. 1980
LOCATION
NATIONWIDE APPLICABILITY
ABSTRACT

THIS PROJECT INVOLVES SYSTEM STUDIES PREDICTING THE
EFFICIENCY OR DYNAMIC BEHAVIOR OF MHD/STEAM POWER PLANTS
OR COMPONENTS.
MHD
REPORTS AND PUBLICATIONS
16TH SYMPOSIUM ON ENGINEERING ASPECTS OF MHD, PITTSBURGH, PA
"A HEAT CAPACITOR FOR MHD SYSTEMS".
17TH SYMPOSIUM ON ENGINEERING ASPECTS OF MHD, STANFORD, CA
"OPEN LOOP TRANSCIENT RESPONSES FOR MHD BOTTOMING PLANTS".
18TH SYMPOSIUM ON ENGINEERING ASPECTS OF MHD, BUTTE MT:
"A MODULAR APPROACH TO ONE ETF AND BEYOND".

00001521

PROJECT TITLE
SLAG - SEED WORKSHOP - HEAT RECOVERY/SEED RECOVERY WORKSHOP
SOURCE NUMBER
26000-336
INVESTIGATOR(S)
I. ELIEZER
REED HOWALD
RESEARCH INSTITUTION
MONTANA STATE UNIV.
BOZEMAN, MT
PRIMARY SPONSOR
ELECTRIC POWER RESEARCH INSTITUTE
3412 HILLVIEW AVE.
PALO ALTO, CA 95304
SECONDARY SPONSOR
U. S. DEPT. OF ENERGY
PRIMARY FUNDING AMOUNT
5,000
SECONDARY FUNDING AMOUNT
TRAVEL EXPENSES
TIME FRAME
MARCH 1979 TO JUNE 1979
LOCATION
MT - GALLATIN CO.; BOZEMAN
ABSTRACT
A ONE DAY MEETING WAS HELD FOR RESEARCH PERSONNEL AND
OTHERS CONCERNED WITH SLAG-SEED INTERACTIONS IN COAL FIRED
OPEN CYCLE MHD. MONTANA STATE UNIVERSITY TOOK THE INITIATIVE
IN GETTING THIS STARTED. THE EXCHANGE OF INFORMATION
WAS VERY PRODUCTIVE, AND WE EXPECT THAT FURTHER WORKSHOPS
IN THIS AREA OF MAGNETOHYDRODYNAMICS WILL BE ORGANIZED
AT OTHER LOCATIONS.
PUBLICATIONS ADDRESS
ANDY LOWENSTEIN / EPRI
KEVIN SHEA / DYNATREND, INC.

00001522

PROJECT TITLE
MODERATE TEMPERATURE SLAG FLOW FACILITY - HIGH
TEMPERATURE HEAT EXCHANGER
SOURCE NUMBER
648 TASK E
INVESTIGATOR(S)
H. TOWNES
RESEARCH INSTITUTION
MONTANA STATE UNIV.
BOZEMAN, MT 59717
PRIMARY SPONSOR
U. S. DEPT. OF ENERGY - MONTANA ENERGY & MHD RESEARCH
& DEVELOPMENT INST.
PRIMARY FUNDING AMOUNT
200,000
TIME FRAME
OCT. 1979 TO SEPT. 30 1980
LOCATION
NATIONWIDE APPLICABILITY
ABSTRACT
OPERATION OF A REGENERATIVE CERAMIC CORED BRICK HEAT
EXCHANGER ON THE COMBUSTION PRODUCTS OF COAL.
REPORTS AND PUBLICATIONS
QUARTERLY & ANNUAL DOE REPORTS - SIX PUBLICATIONS
PUBLICATIONS ADDRESS
H. TOWNES
MONTANA STATE UNIV.
BOZEMAN, MT 59717

00001523

PROJECT TITLE
MHD SLAG-SEED EQUILIBRIA AND SEPARATIONS.
SOURCE NUMBER
649 TASK F
INVESTIGATOR(S)
REED HOWALD
DR. RAY WOODRIFF
ISAAC ELIEZER
NAOMI ELIEZER
RESEARCH INSTITUTION
MONTANA STATE UNIV., DEPT. OF CHEMISTRY
BOZEMAN, MT 59717
PRIMARY SPONSOR
U. S. DEPT. OF ENERGY
PRIMARY FUNDING AMOUNT
100,000
TIME FRAME
1978 TO 1979
LOCATION

NATIONWIDE APPLICABILITY
ABSTRACT

THE INTERACTIONS OF COAL SLAG WITH CERAMIC MATERIALS AND WITH POTASSIUM CARBONATE AND POTASSIUM SULFATE SEED COMPOUNDS ARE PARTICULARLY CRUCIAL TO THE SUCCESS OF MHD AND SHOULD BE KNOWN IN DETAIL PARTICULARLY IN THE SECTION FROM THE COMBUSTOR THROUGH A HEAT RECOVERY AND SEED RECOVERY SYSTEM. THIS SECTION HAS THE HIGHEST TEMPERATURE AND AND LARGEST AMOUNTS OF SEED AND SLAG. PORTIONS OF THE SLAG ARE REMOVED IN THE COMBUSTOR AND AT VARIOUS POINTS DOWNSTREAM WHERE SLAG CONDENSES ON THE SURFACES AND ALSO AS DROPLETS IN THE GASEOUS PHASE. ONE WISHES TO RECOVER THE POTASSIUM SEED IN A WATER SOLUBLE FORM SUCH AS POTASSIUM SULFATE. SINCE POTASSIUM ALUMINUM SILICATES ARE NOT WATER SOLUBLE, IT IS IMPORTANT TO REMOVE AT LEAST THE ALUMINUM PORTION WHILE MOST OF THE POTASSIUM REMAINS GASEOUS. TO ACHIEVE THIS, INFORMATION IS NEEDED ON POTASSIUM VAPOR PRESSURES AND SOLUBILITIES AS A FUNCTION OF POTASSIUM CONTENT AND TEMPERATURE FOR A VARIETY OF SLAG COMPOSITIONS. SOME SUCH MEASUREMENTS ARE AVAILABLE AND MORE ARE BEING DONE IN OUR LABORATORIES. HOWEVER WITH THE GREAT VARIATIONS IN THE ASH OF DIFFERENT COAL SAMPLES AND WITH COMPOSITION CHANGES ON PARTIAL VAPORIZATION AND SEED ADDITION, IT IS UNLIKELY THAT ONE CAN FIND MEASURED VALUES AT THE PARTICULAR COMPOSITION AND TEMPERATURE DESIRED. WHAT IS NEEDED IS AN INTERPOLATION PROCEDURE, AN ABILITY TO CALCULATE THE NEEDED VALUES. WE HAVE RESOLVED THE MAJOR DIFFICULTIES ALONG THE WAY TO COMPUTER CALCULATION OF THE PROPERTIES OF SEED-SLAG SYSTEMS. THE CALCULATIONS ARE WELL ALONG FOR SEVERAL THREE COMPONENT SYSTEMS. MOST OF THE IMPORTANT ENGINEERING APPLICATIONS WILL REQUIRE DATA FOR SYSTEMS OF SIX OR MORE COMPONENTS, BUT THIS GOAL IS NOW WITHIN REACH.

REPORTS AND PUBLICATIONS
NUMEROUS REPORTS AND PUBLICATIONS
PUBLICATIONS ADDRESS
REED A. HOWALD
MONTANA STATE UNIV., CHEMISTRY DEPT.
BOZEMAN, MT 59717

00001524

PROJECT TITLE
PHYSICAL PROPERTIES OF COAL SLAG AND ELECTRODE MATERIALS: THERMIONIC EMISSION AND EFFECTS OF ELECTRICAL CONDUCTION
SOURCE NUMBER
650 - TASK G
INVESTIGATOR(S)
GERALD LAPEYRE
JIM ANDERSON
WALTER ANDERSON
RESEARCH INSTITUTION
MONTANA STATE UNIV.
BOZEMAN, MT 59717
PRIMARY SPONSOR
U. S. DEPT. OF ENERGY - MONTANA ENERGY & MHD RESEARCH & DEVELOPMENT INST.
PRIMARY FUNDING AMOUNT
16,222
TIME FRAME
SEPT. 1979 TO SEPT. 1980
LOCATION
NATIONWIDE APPLICABILITY
ABSTRACT

THE OBJECTIVES OF THIS PROJECT ARE: 1) TO MEASURE THE THERMIONIC EMISSION PROPERTIES (E.G., THERMIONIC WORK FUNCTION) OF COAL SLAG, INCLUDING SLAG-SEED MIXTURES; 2) TO MEASURE THE THERMIONIC EMISSION PROPERTIES OF CERAMICS CONSIDERED TO HAVE APPLICABILITY AS ELECTRODE MATERIALS IN HOT-WALL COAL-FIRED CHANNELS, AND 3) TO DETERMINE THE AMOUNT AND TYPE OF IONIC MIGRATION OCCURRING IN HEATED COAL SLAG AS A RESULT OF ELECTRIC CURRENTS AND APPLIED ELECTRIC FIELDS IN THE SLAG. THE SLAG THERMIONIC EMISSION STUDIES WILL INCLUDE MEASUREMENTS IN VACUUM OF SYNTHETIC SLAGS OF VARIOUS COMPOSITIONS AND WILL BE EXTENDED TO NATURAL SLAGS. AUGER ELECTRON SPECTROSCOPY WILL BE USED TO CORRELATE THE THERMIONIC EMISSION RESULTS WITH SURFACE COMPOSITION. THE THERMIONIC EMISSION STUDIES WILL INCLUDE MEASUREMENTS UNDER A KNOWN LOW PRESSURE OF POTASSIUM VAPOR. THE RATIONALE FOR THE ION MIGRATION EXPERIMENTS IS TO CHARACTERIZE PHYSICAL PROCESSES WHICH CONTRIBUTE TO CHEMICAL SEGREGATION AND ELECTROLYSIS IN COAL SLAG WITH A CONSEQUENT DEGREDATION OF ELECTRODE PROPERTIES DUE TO CHEMICAL ATTACH AND SHORTING. MEASUREMENTS WITH X-RAY FLOURESCENCE AND SCANNING AUGER MICROSCOPY METHODS WILL BE USED TO MAP OUT THE DISTRIBUTION OF VARIOUS ELEMENTS IN THE SLAG SUBSEQUENT TO PASSING A KNOWN AMOUNT OF CHARGE THROUGH THE SLAG AND AS A FUNCTION OF SLAG COMPOSITION AND TEMPERATURE.

PUBLICATIONS ADDRESS
MONTANA STATE UNIV., PHYSICS DEPARTMENT
BOZEMAN, MONTANA 59715

00001525

PROJECT TITLE
MHD MATERIALS PROPERTIES: SLAGS AND REFRACTORIES
SOURCE NUMBER
651 - TASK J
INVESTIGATOR(S)
RICHARD J. POLLINA
RAYMOND LARSEN
RESEARCH INSTITUTION
MONTANA STATE UNIV., DEPT. OF PHYSICS

BOZEMAN, MT 59715
PRIMARY SPONSOR
U. S. DEPT. OF ENERGY
PRIMARY FUNDING AMOUNT
193,000
TIME FRAME
OCT. 1979 TO SEPT. 1980
LOCATION
NATIONWIDE APPLICABILITY
ABSTRACT

THE INORGANIC CONSTITUENTS OF COAL REMAINING AFTER HIGH TEMPERATURE COMBUSTION IN AN MHD POWER PLANT COMBUSTOR FORM AN IRON-RICH, "DIRTY" GLASS WHOSE ELECTRICAL PROPERTIES ARE IMPORTANT TO THE OPERATION OF AN MHD GENERATOR. IN PARTICULAR, ALKALI "SEED" (K2CO3) IS ADDED TO ENHANCE THE CONDUCTIVITY OF THE PLASMA SO THE SLAG LAYER WHICH COATS THE WALLS AND ELECTRODES OF THE GENERATOR IS RICH IN K2O. WE STUDY THE ELECTRICAL CONDUCTIVITY OF SUCH A SEEDED SLAG UNDER VARYING SEED AND SLAG COMPOSITIONS AND CAN CALCULATE THE CONDUCTIVITY OF A SLAG LAYER ON AN ELECTRODE WALL BASED ON OUR DATA. TO OBTAIN HIGH THERMODYNAMIC EFFICIENCIES FROM MHD THE COMBUSTION TEMPERATURE MUST BY HIGH. THE MOST EFFICIENT MEANS TO ACHIEVE THIS IS TO RECYCLE THE EXHAUST HEAT FROM THE GENERATOR. THIS IS DONE IN A CERAMIC PREHEATER WHICH PRESENTS A SEVERE ENVIRONMENT FOR REFRACTORY MATERIALS. WE STUDY THE STRENGTH AND DURABILITY OF REFRACTORY MATERIALS IN THIS ENVIRONMENT.

REPORTS AND PUBLICATIONS
POLLINA, R. AND R. LARSEN. ELECTRICAL CONDUCTIVITY OF A MONTANA COAL ASH. PROCEEDINGS OF CONFERENCE, APRIL 1977. ARGONNE NAT'L LAB. PUBL. ANL 77-21
POLLINA, R. AND R. LARSEN. 1978. MHD SLAG ELECTRICAL CONDUCTIVITY STUDIES.
SMYTH, R. AND R. POLLINA. 1979. REFRACTORY OXIDES FOR HIGH TEMPERATURE MHD HEATERS.
COAL SLAG: ITS ELECTRICAL PROPERTIES AND SOME MECHANICAL EFFECTS ON MHD CERAMICS. (TO BE PUBLISHED)
PUBLICATIONS ADDRESS
R. POLLINA
MONTANA STATE UNIV., DEPT. OF PHYSICS
BOZEMAN, MT 59715

00001526

PROJECT TITLE
SEPARATION AND DETERMINATION OF POLYCYCLIC AROMATIC HYDROCARBONS AND NITROGEN HETEROCYCLES PERTAINING TO COAL GASIFICATION, TAR SANDS, SHALE OIL, COAL LIQUIDS, AND RELATED SAMPLES.
SOURCE NUMBER
008 DE-AS20-79LC01761
INVESTIGATOR(S)
ROBERT J. HURTUBISE
UNIV. OF WYOMING, CHEMISTRY DEPT.
LARAMIE, WY 82071
RESEARCH INSTITUTION
UNIV. OF WYOMING, INST. OF ENERGY & ENV.
UNIV. STATION BOX 3965
LARAMIE, WY 82071
PRIMARY SPONSOR
U. S. DEPT. OF ENERGY
LARAMIE ENERGY TECHNOLOGY CENTER
UNIV. STA. BOX 3395, LARAMIE, WY 82071
PRIMARY FUNDING AMOUNT
72,460
TIME FRAME
JAN. 1978 TO JUNE 1979
LOCATION
WY - ALBANY CO., LARAMIE
ABSTRACT

THE LARAMIE ENERGY TECHNOLOGY CENTER IS CURRENTLY DEVELOPING THE TECHNOLOGY FOR IN SITU PROCESSING OF OIL SHALE, COAL AND TAR SANDS. BECAUSE THERE ARE NO SPECIFIC SEPARATION, IDENTIFICATION, AND QUANTITATIVE METHODS DEVELOPED FOR POLYCYCLIC AROMATIC HYDROCARBONS (PAH) AND NITROGEN HETEROCYCLES (NH) FOUND IN NUMEROUS IN SITU PRODUCTS AND BECAUSE OF THE TOXIC NATURE OF MANY PAH AND NH, IT IS IMPORTANT TO HAVE AVAILABLE RELIABLE ANALYTICAL METHODS AND SEPARATION TECHNIQUES FOR THESE COMPOUNDS. THE ANALYTICAL SEPARATION TECHNIQUES TO BE USED IN THIS PROJECT ARE THIN-LAYER AND HIGH PERFORMANCE LIQUID CHROMATOGRAPHY, DRY-COLUMN CHROMATOGRAPHY AND PROGRAMMED MULTIPLE DEVELOPMENT. THE SPECTROSCOPIC TECHNIQUES TO BE EMPLOYED FOR IDENTIFICATION AND DETERMINATION PURPOSES ARE MAINLY SOLUTION AND SOLID SURFACE FLUORESCENCE AND PHOSPHORESCENCE SPECTROSCOPY. GENERALLY, THE ABOVE TECHNIQUES WILL BE APPLIED TO PAH AND NH IN SHALE OIL, PETROLEUM PRODUCTS, COAL LIQUIDS, TAR SANDS, SHALE OIL RETORT WATER, WATER FROM UNDERGROUND COAL GASIFICATION, TAR PROCESS WATER, WATER OF COMBUSTION, AIR PARTICULATES, AND OTHER RELATED SAMPLES. SEE ERIS PROJECT NO. 00000959, VOL. 2, NO. 3.

REPORTS AND PUBLICATIONS
PROGRESS REPORTS AVAILABLE.
PUBLICATIONS ADDRESS
UNIV. OF WYOMING, INST. OF ENERGY & ENV.
UNIV. STATION BOX 3965
LARAMIE, WY 82071

00001527

PROJECT TITLE
ANTELOPE VALLEY STATION
SOURCE NUMBER
065

RESEARCH INSTITUTION
   BASIN ELECTRIC POWER COOPERATIVE
   1717 EAST INTERSTATE AVENUE
   BISMARCK, ND 58501
PRIMARY SPONSOR
   BASIN ELECTRIC POWER COOPERATIVE
PRIMARY FUNDING AMOUNT
   1,400,000,000
TIME FRAME
   FEB. 1974 TO NOV. 1983
LOCATION
   ND - MERCER CO.; ANTELOPE VALLEY STATION
ABSTRACT

BASIN ELECTRIC AND ANG COAL GASIFICATION COMPANY (FORMERLY REFERRED TO AS MICHIGAN-WISCONSIN) HAVE DEVELOPED CONTRACTUAL AGREEMENTS WHERIN BASIN ELECTRIC WILL BUILD TWO 416 MW (NET) THERMAL GENERATING UNITS AT THE PROPOSED ANG GASIFICATION SITE NEAR BEULAH, ND. BASIN ELECTRIC WOULD SUPPLY APPROXIMATELY 90 MW OF ELECTRIC POWER FOR THE GASIFICATION FACILITIES FROM ANTELOPE VALLEY UNIT NO. 2. THE REMAINING 742 MW WOULD BE AVAILABLE FOR USE BY BASIN ELECTRIC TO SERVE ITS MEMBER COOPERATIVES' INCREASING LOADS. THE TWO UNITS ARE SCHEDULED FOR COMMERCIAL OPERATION IN THE SPRING OF 1982 AND FALL OF 1983 RESPECTIVELY.

I. OTHER

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00001528
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PROJECT TITLE
   ROJO CABALLOS MINE, CAMPBELL COUNTY, WY INDUSTRIAL
   SITING APPLICATION DEVELOPMENT PROCESS
SOURCE NUMBER
   78-176
INVESTIGATOR(S)
   THEODORE D. BROWNE
   EDWARD F. HARVEY
RESEARCH INSTITUTION
   BBC & ASSOCIATES
   100 SOUTH MADISON
   DENVER, CO 80209
PRIMARY SPONSOR
   MOBIL OIL CORPORATION
   P. O. BOX 5444
   DENVER, CO 80217
PRIMARY FUNDING AMOUNT
   14,300
TIME FRAME
   OCT. 1978 TO FEB. 1979.
LOCATION
   WY - CAMPBELL CO.
ABSTRACT
   THIS REPORT PROVIDES MOBIL OIL CORPORATION WITH A DETAILED
   AND COMPREHENSIVE APPROACH TO THE DEVELOPMENT OF AN
   APPLICATION FOR PERMIT FROM THE WYOMING INDUSTRIAL SITING
   ADMINISTRATION (WISA) FOR THE ROJOS CABALLOS MINE.  THIS
   THIS PERMIT PROCESS WILL COMPRISE AN APPLICATION DEVELOPMENT
   AND PRE-FILING PROGRAM, A MASTER SCHEDULE - WISA APPLICA-
   TION DEVELOPMENT PROGRAM, AND A HEARING PREPARATION AND
   POST-FILING ACTIVITIES PROGRAM (POST-FILING PROGRAM).
REPORTS AND PUBLICATIONS
   REPORTS NOT AVAILABLE.
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2.0 PETROLUEM, NATURAL GAS, AND OILSHALE

00001529

PROJECT TITLE
FUEL MANAGEMENT AND INFORMATION PROJECT
SOURCE NUMBER
10071036
INVESTIGATOR(S)
JOHN BRAUNBECK
RESEARCH INSTITUTION
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION
32 SOUTH EWING ST.
HELENA, MT 59601
PRIMARY SPONSOR
OLD WEST REGIONAL COMMISSION
228 HEDDEN-EMPIRE BLDG.
BILLINGS, MT 59101
PRIMARY FUNDING AMOUNT
25,000
TIME FRAME
NOV. 1979 TO OCT. 1980
LOCATION
MT
ABSTRACT

THE CURRENT FUEL CRISIS HAS TAXED THE RESOURCES OF STATE GOVERNMENT BODIES DEALING WITH ENERGY. IN MONTANA THE STATE FUEL ALLOCATION OFFICE HAS BEEN INUNDATED WITH WITH SET-ASIDE REQUESTS SINCE MAY, 1979. ONE DOE REPRESENTATIVE AND TWO ASCS PERSONNEL WERE TEMPORARILY ASSIGNED TO THE FUEL ALLOCATION OFFICE TO HELP, BUT HAVE SINCE LEFT. ADDITIONAL HELP AND STRATEGIES ARE NECESSARY TO KEEP UP WITH THE SET-ASIDE REQUESTS AND OTHER FUEL-RELATED PROBLEMS. THE PURPOSE OF THIS GRANT IS TO ASSIST THE MONTANA ENERGY OFFICE IN DEVELOPING IMPROVED PROCEDURES, DATA SYSTEMS AND INFORMATION STRATEGIES SO MONTANA CAN EFFECTIVELY MEET ITS FUEL MANAGEMENT NEEDS. THE SPECIFIC OBJECTIVES ARE: 1) TO DEVELOP AND IMPLEMENT NEW STATE FUEL SET-ASIDE PROCEDURES; 2) TO ACQUIRE NEEDED PETROLEUM AND PETROLEUM PROJECT DATA; AND 3) TO DEVELOP AND IMPLEMENT A PUBLIC INFORMATION PROGRAM FOR RELATING TO THE ON-GOING FUEL SITUATION.

00001530

PROJECT TITLE
A PILOT STUDY TO DEVELOP AN ADMINISTRATIVE MODEL FOR A VIABLE FUEL ALLOCATION OFFICE
SOURCE NUMBER
10075028
INVESTIGATOR(S)
PAMELA A. ABEL
RESEARCH INSTITUTION
WYOMING ENERGY CONSERVATION OFFICE
CHEYENNE, WY 32002
PRIMARY SPONSOR
OLD WEST REGIONAL COMMISSION
228 HEDDEN EMPIRE BLDG.
BILLINGS, MT 59101
PRIMARY FUNDING AMOUNT
25,000
TIME FRAME
NOV. 1979 TO OCT. 1980
LOCATION
WY
ABSTRACT

THE ARAB EMBARGO OF 1973 CREATED THE NEED FOR A FUEL ALLOCATION OFFICE AND THE MOTOR GASOLINE AND MIDDLE DISTILLATES SHORTAGE THAT OCCURRED IN THE SPRING OF 1979 FURTHER EMPHASIZED THIS NEED. AT THIS TIME, THE STATE HAS NO DIRECTION OR MODEL TO ESTABLISH EFFECTIVE MEANS TO DEAL WITH THE NUMEROUS CHANGES IN FEDERAL REGULATIONS, MANDATES AND STATE REGULATION CHANGES RELATIVE TO THE FUEL ALLOCATION SET ASIDE PROGRAM. THE SPECIFIC TASKS OF THE PROJECT ARE: 1) DEVELOPMENT OF AN ADMINISTRATIVE PROCESS FOR A MODEL STATE ENERGY OFFICE BY CREATING A SET OF COMMUNICATION AND COORDINATION PROCEDURES; 2) TO DEVELOP AND PILOT A REPORTING SYSTEM THAT WILL EFFECTIVELY KEEP THE GOVERNOR PERSONALLY AWARE OF THE ENERGY NEEDS AND ISSUES RELATING TO THE STATE; AND 3) TO DEVELOP A PROCESS WHERE ALL PERTINENT FEDERAL REGULATIONS CONCERNING FUEL ALLOCATION ARE REVIEWED ON A TIMELY BASIS.

00001531

PROJECT TITLE
NORTH DAKOTA FUELS MANAGEMENT AND INFORMATIONAL CLEARINGHOUSE
SOURCE NUMBER
10073113
INVESTIGATOR(S)
CLIFFORD NESS
RESEARCH INSTITUTION
NORTH DAKOTA STATE GOVERNMENT
STATE CAPITOL BLDG
BISMARK, ND 58505
PRIMARY SPONSOR
OLD WEST REGIONAL COMMISSION
118 HEDDEN EMPIRE BLDG.
BILLINGS, MT 59107
PRIMARY FUNDING AMOUNT
25,000

TIME FRAME
DEC. 1979 TO DEC. 1980
LOCATION
ND
ABSTRACT
FUELS MANAGEMENT BY THE STATE FUEL ALLOCATION OFFICE HAS BECOME A VERY INTEGRAL AND ESSENTIAL PART OF THE NORTH DAKOTA ENERGY SCENE. INDICATIONS ARE THAT THERE WILL CONTINUE TO BE SPOT SHORTAGES IN DIESEL, GASOLINE, AND HOME HEATING FUEL. RECENTLY, TWO INDIVIDUALS IN THE FUEL ALLOCATION OFFICE HAVE BEEN WORKING FULL TIME IN AN ATTEMPT TO KEEP UP WITH THE TREMENDOUS INCREASE IN REQUESTS FOR FUEL ASSISTANCE AND INFORMATION. THE MAN HOURS REQUIRED TO ANALYZE OUR CURRENT OPERATION, MAKE RECOMMENDATIONS AND TEST NEW OR REVISED MANAGEMENT AND INFORMATION SYSTEMS ARE CONSIDERABLE AND BEYOND OUR PRESENT CAPABILITIES. THEREFORE, THIS PROJECT WILL ASSIST NORTH DAKOTA IN DEVELOPING AN EFFECTIVE AND EFFICIENT ENERGY DATA SYSTEM THAT WILL MEET THE NEEDS OF PEOPLE IN NORTH DAKOTA. THE SPECIFIC PROJECT OBJECTIVES ARE TO: 1) PROVIDE RELEVANT, ACCURATE AND CURRENT INFORMATION TO THE STATE'S CITIZENRY REGARDING FUEL NEEDS, AVAILABILITY AND DISTRIBUTION; 2) DESIGN AN EFFICIENT AND EFFECTIVE FUEL ALLOCATION MANAGEMENT SYSTEM; 3) DEVELOP A WORKABLE PROCESS FOR DETERMINING STATE FUEL NEEDS, PRODUCT AVAILABILITY AND DISTRIBUTION; AND 4) ESTABLISH A COMMUNICATION SYSTEM BETWEEN THE FUEL ALLOCATION OFFICE, PRIME SUPPLIERS, DEALERS, AND USERS.

00001532

PROJECT TITLE
NORTHERN BORDER PIPELINE PROJECT: A PREBUILT PORTION OF THE ALASKA NATURAL GAS TRANSPORTATION SYSTEM
INVESTIGATOR(S)
CARL D. SCHULZ
RESEARCH INSTITUTION
NORTHERN BORDER PIPELINE CO.
2223 DODGE STREET
OMAHA, NE 68102
COOPERATOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION
NORTH DAKOTA PUBLIC SERVICE COMMISSION
PRIMARY SPONSOR
NORTHERN BORDER PIPELINE CO.
2223 DODGE STREET
OMAHA, NE 68102
PRIMARY FUNDING AMOUNT
NOT AVAILABLE
TIME FRAME
SECOND QUARTER 1978 TO FOURTH QUARTER 19
LOCATION
MT - ND - SD - IA - MN
ABSTRACT
THIS PROJECT IDENTIFIES THE PROJECTED ROUTE OF THE NORTHERN TIER PIPELINE. THE COUNTIES CROSSED BY THE PIPELINE ROUTE ARE:
MT - PHILLIPS CO., VALLEY CO., ROOSEVELT CO.
ND - WILLIAMS CO., MCKENZIE CO., DUNN CO., MERCER CO., STARK CO., MORTON CO., EMMONS CO., MCINTOSH CO.
SD - MCPHERSON CO., EDMUNDS CO., BROWN CO., CLARK CO., SPINK CO., CODINGTON CO., HAMLIN CO., DEUEL CO.
THE PIPELINE THEN CONTINUES THROUGH MINNESOTA AND IOWA, TERMINATING AT VENTURE, IA.
PUBLICATIONS ADDRESS
NO REPORTS AVAILABLE AT THIS TIME

00001533

PROJECT TITLE
CHARACTERIZING THE MECHANICAL PROPERTIES OF OIL SHALE.
SOURCE NUMBER
034 DE-AS20
INVESTIGATOR(S)
K. P. CHONG
UNIV. OF WYOMING, DEPT. OF CIVIL ENGINEERING
RESEARCH INSTITUTION
UNIV. OF WYOMING, INST. OF ENERGY & ENV.
UNIV. STATION BOX 3965
LARAMIE, WY 82071
PRIMARY SPONSOR
U. S. DEPT. OF ENERGY
LARAMIE ENERGY TECHNOLOGY CENTER
9TH & LEWIS / LARAMIE, WY 82071
PRIMARY FUNDING AMOUNT
59,996
TIME FRAME
JAN. 1979 TO DEC. 1979
LOCATION
WY - ALBANY CO.; LARAMIE
ABSTRACT
THE MAJOR GOAL OF THIS PROPOSAL IS TO EXTEND THE PRESENT TESTING AND ANALYSES METHODOLOGY, DEVELOPING AND STANDARDIZING A PROCEDURE FOR GENERAL NON-SITE-SPECIFIC MECHANICAL PROPERTY CHARACTERIZING OF OIL SHALE FROM THE GREEN RIVER FORMATION AND POSSIBLY FROM OTHER DEPOSITS. THESE MECHANICAL PROPERTIES DEPEND ON ORGANIC VOLUME, STRESS LEVELS, MINERAL CONTENTS, STRAIN RATES AND TIME VARIABLES. FOR THOROUGH CHARACTERIZING, THE FOLLOWING PROPERTIES ARE NEEDED: THREE-DIMENSIONAL CONSTITUTIVE RELATIONSHIPS USING FOUR OR FIVE INDEPENDENT COEFFICIENTS; STRAIN RATE EFFECTS; ULTIMATE TENSILE STRENGTH; ULTIMATE COMPRESSIVE STRENGTH; AND CREEP AND RELAXATION BEHAVIOR. OIL SHALE CAN BE THOROUGHLY CHARACTERIZED WITH A LIMITED NUMBER OF TESTS. WORK TO BE PERFORMED INCLUDES: 1) PRECISE, REPRESENTATIVE

REPLICATE SAMPLE PREPARATION AT DIFFERENT STRATA AND OIL CONTENTS; 2) DETERMINATION OF YOUNG'S MODULI AND POISSON'S RATIOS PARALLEL AND PERPENDICULAR TO BEDDING PLANES; 3) UNIAXIAL LOADS APPLYING AT VARIOUS STRAIN RATES IN DIRECTIONS PERPENDICULAR TO BEDDING PLANES, EXTRAPOLATING THE EFFECTS OF HIGHER STRAIN RATES; 4) CALCULATING AVERAGE ULTIMATE TENSILE STRENGTH ALONG (NOT BETWEEN) BEDDING PLANES, USING SPLIT CYLINDER TESTS; 5) UNIAXIAL CREEP AND RELAXATION TESTS WITH LOADS APPLIED PERPENDICULAR TO BEDDING PLANES. EVALUATION OF THE APPLICABILITY AND MERIT OF THE CHARACTERIZING PROCEDURE, AS WELL AS THE PREDICTABILITY OF THE MECHANICAL PROPERTIES, WILL BE BASED ON THESE TESTS.

REPORTS AND PUBLICATIONS
PROGRESS REPORTS AVAILABLE

PUBLICATIONS ADDRESS
UNIV. OF WYOMING, INST. OF ENERGY & ENV.
UNIV. STATION BOX 3965
LARAMIE, WY 82071

00001534

PROJECT TITLE
SPENT OIL SHALE/H2S SCRUBBING REACTION KINETICS DETERMINATION AND CONTINUOUS REACTOR DESIGN.

SOURCE NUMBER
027 DE-AS20

INVESTIGATOR(S)
T. T. PHILLIPS
UNIV. OF WYOMING, DEPT. OF CHEMICAL ENG.
LARAMIE, WY 82071

RESEARCH INSTITUTION
UNIV. OF WYOMING, INST. OF ENERGY & ENV.
MERICA HALL #323
LARAMIE, WY 82071

PRIMARY SPONSOR
U. S. DEPT. OF ENERGY
LARAMIE ENERGY TECHNOLOGY CENTER
UNIV. OF WYOMING / LARAMIE, WY 82071

PRIMARY FUNDING AMOUNT
37,895

TIME FRAME
JUNE 1978 TO DEC. 1979

LOCATION
WY - ALBANY CO.; LARAMIE

ABSTRACT
THE LARAMIE ENERGY TECHNOLOGY CENTER (LETC) IS INVOLVED IN THE DEVELOPMENT OF TECHNOLOGY TO PROCESS OIL SHALE TO USABLE FUELS. A SIGNIFICANT PROBLEM AREA IN THIS DEVELOPMENT IS GAS CLEANUP OF PROCESS GASES. A POSSIBLE METHOD OF REMOVAL OF H2S IN THIS PRODUCT GAS WOULD BE TO SCRUB THE GAS BY REACTING IT WITH DOLOMITE CONTAINING SPENT OIL SHALE. THIS PROJECT WILL INVOLVE THE DEVELOPMENT OF EQUILIBRIUM AND KINETIC DATA ON THE REACTION BETWEEN SPENT OIL SHALE AND GAS CONTAINING H2S. THE SPENT SHALE USED WILL BE ANALYZED BEFORE AND AFTER REACTION BY ELEMENTAL AND X-RAY DIFFRACTION TECHNIQUES. THE GOAL OF THE PROGRAM IS TO PROVIDE: 1) A BASE LINE EQUILIBRIUM MODEL OF THE CALCINING REACTIONS OF SPENT OIL SHALES IN CARBON DIOXIDE ATMOSPHERES; 2) A COMPUTER MODEL OF REACTION RATES FOR REACTION BETWEEN HYDROGEN SULFIDES AND SPENT OIL SHALE; AND 3) A CONTINUOUS REACTOR DESIGN USING THIS PROCESS.

REPORTS AND PUBLICATIONS
PROGRESS REPORTS AVAILABLE

PUBLICATIONS ADDRESS
UNIV. OF WYOMING, INST. OF ENERGY & ENV.
UNIV. STATION BOX 3965
LARAMIE, WY 82071

00001535

PROJECT TITLE
INVESTIGATIONS ON THE USE OF OPTICAL ACTIVITY OF SHALE OIL IN THE RETORTING OF OIL SHALE.

SOURCE NUMBER
025 DE-AS20

INVESTIGATOR(S)
R. O. ASPLUND
UNIV. OF WYOMING, DEPT. OF CHEMISTRY
LARAMIE, WY 82071

RESEARCH INSTITUTION
UNIV. OF WYOMING, INST. OF ENERGY & ENV.
MERICA HALL #323
LARAMIE, WY 82071

PRIMARY SPONSOR
U. S. DEPT. OF ENERGY
LARAMIE ENERGY TECHNOLOGY CENTER
LARAMIE, WY 82071

PRIMARY FUNDING AMOUNT
57,778

TIME FRAME
JAN. 1978 TO DEC. 1979

LOCATION
WY - ALBANY CO.; LARAMIE

ABSTRACT
STUDY OF THE OPTICAL ACTIVITY OF SHALE OIL HAS APPLICATION TO TWO PHASES OF SHALE OIL TECHNOLOGY. OPTIMAL RETORTING CONDITIONS MAY BE ESTABLISHED FROM KINETIC PROFILES, AND THE PROGRESS OF IN-SITU RETORTING MAY BE FOLLOWED BY MONITORING CHANGES IN OPTICAL ACTIVITY. TO ASSESS THE USEFULNESS OF OPTICAL ACTIVITY, OPTICAL PARAMETERS AND OPTICAL KINETIC PARAMETERS OF PURE COMPOUNDS FROM OIL SHALE, OIL SHALE BITUMEN, SHALE OIL, AND SHALE OIL FRACTIONS MUST BE DETERMINED. THE RESEARCH WILL OBTAIN THE ABOVE

PARAMETERS BY OPTICAL ROTATORY DISPERSION (ORD) AND CIRCULAR DICHROISM SPECTROSCOPY (CD). OBJECTIVES OF THE STUDY ARE: 1) CHARACTERIZE THE CHANGES IN OPTICAL ROTATION OF SHALE OIL AND ITS FRACTIONS OVER A RANGE OF THERMAL AND PHYSICAL CONDITIONS INDICATED BY PRESENT AND PROJECTED RETORTING TECHNOLOGY; 2) DEFINE SUCH CHANGES IN TERMS OF CHEMICAL KINETICS; 3) CORRELATE OBSERVED CHANGES IN OPTICAL ROTATION OF OIL SHALE WITH KNOWN CHEMICAL SYSTEMS; AND 4) PRESENT RESULTS IN TECHNICALLY USEFUL KINETIC TERMS. SELECTED COMPOUNDS WILL BE RETORTED UNDER A RANGE OF CONDITIONS. SHALE OIL FROM A RANGE OF RETORT CONDITIONS WILL BE CHEMICALLY AND OPTICALLY ANALYZED. LABORATORY MICRO-RETORT WILL BE MODIFIED FOR A WIDE RANGE OF THERMAL AND PHYSICAL CONDITIONS. A MATHEMATICAL REPORTING SYSTEM WILL ALLOW THE DATA TO BE APPLIED TO SHALE OIL TECHNOLOGY.

REPORTS AND PUBLICATIONS
PROGRESS REPORTS AVAILABLE.
PUBLICATIONS ADDRESS
UNIV. OF WYOMING, INST. OF ENERGY & ENV.
UNIV. STATION BOX 3965
LARAMIE, WY 82071

00001536

PROJECT TITLE
UTILIZATION OF NAHCOLITE IN A DRY SO2-NOX ABSORBER SYSTEM.
SOURCE NUMBER
033 DE-AS20
INVESTIGATOR(S)
J. HOWATSON
UNIV. OF WYOMING, DEPT. OF CHEMISTRY
LARAMIE, WY 82071
RESEARCH INSTITUTION
UNIV. OF WYOMING, INST. OF ENERGY & ENV.
UNIV. STATION BOX 3965
LARAMIE, WY 82071
PRIMARY SPONSOR
U. S. DEPT. OF ENERGY
LARAMIE ENERGY TECHNOLOGY CENTER
9TH AND LEWIS / LARAMIE, WY 82071
PRIMARY FUNDING AMOUNT
50,686
TIME FRAME
JUNE 1978 TO MAY 1980
LOCATION
WY - ALBANY CO.; LARAMIE
ABSTRACT

DEVELOPMENT OF OIL SHALE DEPOSITS IN THE GREEN RIVER FORMATION WOULD BE MORE COST-EFFECTIVE IF THE ASSOCIATED ALKALI CARBONATE MINERALS (NAHCOLITE) WERE ALSO UTILIZED. NAHCOLITE HAS BEEN PROPOSED AS A COMPONENT IN A "DRY" SO2-NOX ABSORBER SYSTEM, TO BE USED IN THE FLUE GAS STREAM OF COAL-FIRED POWER PLANTS. TO OPTIMIZE SUCH A SYSTEM, DETAILED DATA ON THE CHEMICAL REACTIONS OCCURRING DURING ABSORBTION ARE NEEDED. THE GOALS OF THIS PROJECT ARE TO PERFORM LABORATORY STUDIES ON THE ABSORBTION PROCESS OF SULFUR DIOXIDE (SO2) AND NITROGEN OXIDES (NOX) BY NAHCOLITE (SODIUM BICARBONATE) AND TO PROVIDE CHEMICAL INFORMATION NECESSARY TO MAXIMIZE THE RATE AND EXTENT OF SO2 AND NOX UPTAKE BY NAHCOLITE. OBJECTIVES ARE TO 1) MEASURE REACTION RATES OF NAHCOLITE WITH SO2 TO PRODUCE SODIUM PYROSULFITE DURING A SUCCESSION OF EXPOSURE TIMES AT APPROPRIATE TEMPERATURES FOR THE FOUR COMMON GEOLOGICAL TYPES OF NAHCOLITE; 2) IDENTIFY PRODUCTS FORMED DURING ABSORBTION REACTION OF SO2 BY NAHCOLITE BY A COMBINATION OF X-RAY POWDER DIFFRACTION, INFRARED SPECTROSCOPY, AND CHEMICAL ANALYSIS, AND USING THESE TECHNIQUES TO QUANTIFY PRODUCTS; MEASURE WEIGHT CHANGE BY CAHN ELECTROBALANCE; MEASURE DECREASE IN SO2 IN EFFLUENT GAS BY MICROWAVE SPECTROSCOPY; DETERMINE PHYSICAL NATURE OF PRODUCTS BY SCANNING ELECTRON MICROSCOPY AND SURFACE AREA MEASUREMENT. 3) DETERMINE THE ABSORBTION OF NOX USING THE SAME TECHNIQUES DESCRIBED ABOVE FOR SO2.

REPORTS AND PUBLICATIONS
PROGRESS REPORTS AVAILABLE.
PUBLICATIONS ADDRESS
UNIV. OF WYOMING, INST. OF ENERGY & ENV.
UNIV. STATION BOX 3695
LARAMIE, WY 82071

00001537

PROJECT TITLE
THERMAL BEHAVIOR OF DAWSONITE AS RELATED TO EXTRACTION OF ALUMINA FROM OIL SHALE
SOURCE NUMBER
035 DE-AS20
INVESTIGATOR(S)
J. HOWATSON
UNIV. OF WYOMMING, DEPT. OF CHEMISTRY
RESEARCH INSTITUTION
UNIV. OF WYOMING, INST. OF ENERGY & ENV.
UNIV. STATION BOX 3965
LARAMIE, WY 82071
PRIMARY SPONSOR
U. S. DEPT. OF ENERGY
LARAMIE ENERGY TECHNOLOGY CENTER
9TH AND LEWIS / LARAMIE, WY 82071
PRIMARY FUNDING AMOUNT
39,115
TIME FRAME
SEPT. 1978 TO AUG. 1980
LOCATION

WY - ALBANY CO.; LARAMIE

ABSTRACT

THE LARAMIE ENERGY TECHNOLOGY CENTER IS CURRENTLY PURSUING A PROGRAM IN OIL SHALE TECHNOLOGY. COMMERCIAL OIL SHALE OPERATIONS WILL BECOME MORE COST EFFECTIVE IF MINERALS ASSOCIATED WITH IT CAN BE EFFECTIVELY UTILIZED. DAWSONITE, AN ALUMINUM CONTAINING MINERAL, OCCURS IN LARGE AMOUNTS IN OIL SHALES OF THE GREEN RIVER FORMATION ALONG WITH AN ALUMINUM TRIHYDROXIDE MINERAL, TENTATIVELY IDENTIFIED AS NORDSTRANDITE. THESE MINERALS ARE A RESOURCE CAPABLE OF MEETING THE ALUMINA REQUIREMENTS OF THE U. S. FOR HUNDREDS OF YEARS. IN THE GREEN RIVER FORMATION DAWSONITE IS FOUND ALMOST EXCLUSIVELY IN MICROCRYSTALLINE FORM, AND EXTRACTION IS BEST ACCOMPLISHED FROM SPENT SHALE. OPTIMIZATION OF THE EXTRACTION PROCESS REQUIRES DETAILED INFORMATION ON THE THERMAL BEHAVIOR OF DAWSONITE. THIS PROGRAM WILL ADDRESS THE FOLLOWING TASKS: 1) IDENTIFY SOLID AND GASEOUS THERMAL DECOMPOSITION PRODUCTS OF DAWSONITE FOR VARIOUS PARTICLE SIZES, ATMOSPHERES, PRESSURES, AND HEATING RATES INCLUDING THOSE ENCOUNTERED IN A CONVENTIONAL OIL SHALE RETORT; 2) INVESTIGATE THE PHYSICAL PROPERTIES OF THE SOLID DECOMPOSITION PRODUCTS OF DAWSONITE SUCH AS POROSITY, SOLUBILITY, AND SURFACE AREA: 3) DEVELOP SIMILAR INFORMATION FOR NORDSTRANDITE, IF FEASIBLE.

REPORTS AND PUBLICATIONS

PROGRESS REPORTS AVAILABLE.

PUBLICATIONS ADDRESS

UNIV. OF WYOMING, INST. OF ENERGY & ENV.
UNIV. STATION BOX 3965
LARAMIE, WY 82071

00001538

PROJECT TITLE
   INSTRUMENTATION OF AN UNDERGROUND HOUSE
SOURCE NUMBER
   78-00138:3R92
INVESTIGATOR(S)
   L. D. FEISEL
   R. MCNEIL
RESEARCH INSTITUTION
   SOUTH DAKOTA SCHOOL OF MINES AND TECHNOLOGY
   RAPID CITY, SD 57701
PRIMARY SPONSOR
   SOUTH DAKOTA HOUSING AUTHORITY
   PIERRE, SD
PRIMARY FUNDING AMOUNT
   5,875
TIME FRAME
   AUG. 1978 TO NOV. 1979
LOCATION
   SD - PENNINGTON CO.
ABSTRACT
   TWENTY THERMISTORS WERE INSTALLED IN AND AROUND AN
   UNDERGROUND HOUSE TO MONITOR THE THERMAL CHARACTERISTICS
   OF THE HOUSE.

3.2 SOLAR ENERGY

00001539

PROJECT TITLE
SOLAR HEATING OF ON-FARM LIVESTOCK STRUCTURES DEMONSTRATION PROJECT.
INVESTIGATOR(S)
GERALD. R. BODMAN / FOSTER OWEN / BOBBY MOSER / EARL GLEAVES / DAVE SHELTON / LARRY BITNEY / MIKE KOCHER
UNIV. OF NEBRASKA, COOP. EXTENSION SERVICE
101G AGRICULTURAL ENG. BLDG / LINCOLN, NE 68583
RESEARCH INSTITUTION
UNIV. OF NEBRASKA, DEPT. OF AG. ENGINEERING
LINCOLN, NE 68583
PRIMARY SPONSOR
U. S. DEPT. OF AGRIC. / U. S. DEPT. OF ENERGY
USDA-SEA-ES / WASHINGTON, D. C. 20250
SECONDARY SPONSOR
UNIV. OF NEBRASKA COOP. EXTENSION SERVICE
PRIMARY FUNDING AMOUNT
173,700
SECONDARY FUNDING AMOUNT
105,740
TIME FRAME
JUNE 1979 TO JUNE 1982
LOCATION
NE - LANCASTER CO.; ADAMS CO.; CLAY CO.; SEWARD CO.; JOHNSON CO.; BURT CO.; DODGE CO.
ABSTRACT

THE PROJECT IS DESIGNED TO DEMONSTRATE THE TECHNICAL AND ECONOMIC FEASIBILITY OF UTILIZING SOLAR ENERGY TO REDUCE DEPENDENCE ON FOSSIL FUELS IN THE OPERATION OF ON-FARM LIVESTOCK STRUCTURES. WITHIN THE PROJECT DIFFERENT COLLECTOR AND STORAGE SYSTEMS UTILIZING DIFFERENT MATERIALS ARE BEING USED. AMONG THE PRODUCTION FACILITIES INVOLVED IN THE PROJECT ARE SWINE NURSERY AND FARROWING UNITS, TURKEY BROODING AND GROWOUT UNITS AND VARIOUS DAIRY FACILITIES. IN ADDITION TO FEASIBILITY STUDIES, THE PROJECT HAS THREE SECONDARY OBJECTIVES. EMPHASIS IS ON THE DEVELOPMENT OF DESIGNS AND SYSTEMS WHICH ARE: 1) READILY AND EASILY CONSTRUCTED BY INDIVIDUAL PRODUCERS OR FARM BUILDERS; 2) EASILY MANAGED BY INDIVIDUAL PRODUCERS WITHIN THE LIMITATIONS OF THEIR TIME AND TECHNICAL SKILLS TRAINING; AND 3) CAPABLE OF BEING MAINTAINED BY THE PRODUCER OR BY LOCALLY AVAILABLE TECHNICIANS AND SERVICE PERSONNEL. FACILITIES INVOLVED IN THE PROJECT WILL BE MONITORED FOR TWO YEARS TO ASSESS ENERGY USE AND SOLAR INSOLATION IN ORDER TO EVALUATE SYSTEM PERFORMANCE AND DETERMINE REALISTIC PAYBACK PERIODS. ANIMAL PERFORMANCE IS USED AS AN INDICATOR OF OVERALL SYSTEM OPERATION. WORK IS UNDERWAY IN THE DEVELOPMENT AND PREPARATION OF PLANS OF THE VARIOUS SYSTEMS BEING DEMONSTRATED. MODELS OF TWO SYSTEMS ARE UNDER CONSTRUCTION TO ENABLE THE PUBLIC TO MORE FULLY UNDERSTAND THE VARIOUS DESIGN PRINCIPLES. PLANS ARE EXPECTED TO BE READY FOR PUBLIC DISTRIBUTION BY LATE SPRING 1980.

PUBLICATIONS ADDRESS
UNIV. OF NEBRASKA
AGRIC. ENGINEERING EXTENSION
LINCOLN, NE 68583

00001540

PROJECT TITLE
SOLAR ENERGY USE IN A SWINE GROWING-FINISHING UNIT.
INVESTIGATOR(S)
GERALD R. BODMAN / DENNIS D. SCHULTE / JAMES A. DESHAZER
BOBBY D. MOSER / MAURICE C. BAKER
RESEARCH INSTITUTION
UNIV. OF NEBRASKA, AG. EXP. STATION
101 AG. ENG. BLDG
LINCOLN, NE 68583
PRIMARY SPONSOR
U. S. DEPT. OF AGRICULTURE / U. S. DEPT. OF ENERGY
USDA-SEA-AR, NORTH CAROLINA STATE UNIVERSITY
P. O. BOX 5847, RALEIGH, NC 57650
SECONDARY SPONSOR
UNIV. OF NEBRASKA, AG. EXP. STATION
PRIMARY FUNDING AMOUNT
38,830
SECONDARY FUNDING AMOUNT
13,500
TIME FRAME
JULY 1976 TO JUNE 1980
LOCATION
NE - SAUNDERS CO.
ABSTRACT

THE PROJECT WAS DEVELOPED TO STUDY THE POTENTIAL FOR GROWING-FINISHING SWINE (60-220 LBS.). THE NEED FOR A STORAGE SYSTEM FOR "EXCESS" SOLAR ENERGY DURING THE DAY HAD BEEN DEMONSTRATED BY EARLIER RESEARCH. LIKEWISE, CONTINUOUS AIRFLOW OVER THE PIGS HAD BEEN SHOWN TO RESULT IN AN UNDESIRABLE ANIMAL RESPONSE. THEREFORE, IN-FLOOR DISTRIBUTION AND STORAGE WAS SEEN AS A VIABLE ALTERNATIVE. WITH THIS APPROACH IT WAS POSSIBLE TO UTILIZE "ANIMAL ZONE HEATING" AS CONTRASTED TO "TOTAL SPACE" HEATING TO PROVIDE THE DESIRED TEMPERATURES WHILE STILL PROVIDING FOR GOOD VENTILATION. VARIOUS COMBINATIONS OF ACTIVE AND PASSIVE COLLECTORS HAVE BEEN USED TO HEAT THE BUILDING MASS STORAGE SYSTEM. HEAT FROM THE ROOF MOUNTED ACTIVE COLLECTORS IS DISTRIBUTED THROUGH THE FLOOR VIA PASSAGEWAYS FORMED BY CONCRETE BLOCKS LAID SIDEWAYS. THE MASS OF THE BLOCK, SURROUNDING SOIL, AND CONCRETE FLOOR PROVIDE STORAGE FOR

HEAT. THE IN-FLOOR DISTRIBUTION SYSTEM IS ALSO USED TO ACHIEVE SUMMER COOLING. AIR IS CIRCULATED THROUGH THE FLOOR AND A HEAT EXCHANGER. WATER FLOWING TO THE FLUSH TANK IS USED AS A HEAT SINK. DURING THE CURRENT YEAR EMPHASIS IS ON FURTHER EVALUATION OF THE SYSTEM DESIGN, PREPARATION OF CONSTRUCTION PLANS, CONDUCT OF ECONOMIC ANALYSES, AND DEVELOPMENT OF MANAGEMENT STRATEGIES TO MOST EFFICIENTLY UTILIZE SOLAR HEAT, COOLING ALTERNATIVES, AND THE BUILDING MASS HEAT STORAGE CONCEPT. AN EVALUATION OF SEVERAL COLLECTOR INSULATION MATERIALS, GLAZING MOUNTING TECHNIQUES, AND ABSORBER PLATE MATERIALS IS ALSO UNDERWAY.

REPORTS AND PUBLICATIONS

BODMAN, G. R., J. A. DESHAZER, AND B. D. MOSER. 1978. SOLAR ENERGY USE IN A SWINE FINISHING UNIT. PROC. OF CONFERENCE ON SOLAR ENERGY FOR LIVESTOCK PRODUCTION. 23 P.

BODMAN, G. R., D. C. SCHULTE, AND J. A. DESHAZER. 1979. IN-FLOOR DISTRIBUTION AND STORAGE OF SOLAR HEAT IN A SWINE GROWING-FINISHING UNIT. AMER. SOC. OF AG. ENG. TECH. PAPER NO. 79-4525.

PUBLICATIONS ADDRESS

UNIV. OF NEBRASKA
AGRIC. ENG. BUILDING
LINCOLN, NE 68583

00001541

PROJECT TITLE

MONITORING OF DAILY INSOLATION ON TILTED SURFACES, LARAMIE, WYOMING 1979.

INVESTIGATOR(S)

AUGUST H. AUER, JR.
JOHN WHITE

RESEARCH INSTITUTION

UNIV. OF WYOMING, DEPT. OF ATMOS. SCIENCES
UNIV. STATION BOX 3038
LARAMIE, WY 82071

PRIMARY SPONSOR

UNIV. OF WYOMING, INST. OF ENERGY & ENV.
UNIVERSITY STATION BOX 3965
LARAMIE, WY 82071

PRIMARY FUNDING AMOUNT

18,100

TIME FRAME

JAN. 1978 TO DEC. 1979

LOCATION

WY - ALBANY CO., LARAMIE

ABSTRACT

1979 WAS THE SECOND YEAR THE INDUSTRIAL FUND PROVIDED MONEY TO BUY INSTRUMENTS AND COLLECT SOLAR DATA AT THE UNIVERSITY OF WYOMING. FOR TWO YEARS DAILY INCOMING SOLAR RADIATION WAS MEASURED FOR SURFACES TILTED 30, 45, 60, AND 90 DEGREES FROM THE HORIZONTAL, AND FACING EAST, SOUTHWEST, SOUTH, SOUTHWEST, AND WEST. THE FINAL RESULTS ARE PRESENTED GRAPHICALLY TO SHOW VARIATIONS IN INSOLATION THROUGHOUT A YEAR. THESE BENCHMARK DATA CAN BE USED TO DETERMINE THE POTENTIAL FOR ACTIVE AND PASSIVE USE OF SOLAR ENERGY IN LARAMIE, WYOMING. METHODS CAN BE USED ELSEWHERE AS WELL. PRIOR TO THIS STUDY ONLY DATA FOR HORIZONTAL SURFACES WERE AVAILABLE.

REPORTS AND PUBLICATIONS

WHITE, J. M. 1980. MONITORING OF DAILY INSOLATION OF TILTED SURFACES, LARAMIE, WYOMING, 1979. FINAL REPORT TO THE ROCKY MOUNTAIN INSTITUTE OF ENERGY & ENV. DEPT. OF ATMOS. SCIENCE, COLLEGE OF ENGINEERING, UNIV. OF WYOMING, LARAMIE. 29 PP.

PUBLICATIONS ADDRESS

DEPT. OF ATMOS. SCIENCE
UNIV. OF WYOMING
UNIV. STATION BOX 3038 / LARAMIE, WY 82071

00001542

PROJECT TITLE

WESTERN SOLAR UTILIZATION NETWORK (W/SUN)

SOURCE NUMBER

59-6889

INVESTIGATOR(S)

E. GERALD MEYER
FLORENCE BARKER

RESEARCH INSTITUTION

UNIV. OF WYOMING
BOX 3355, UNIV. STATION
LARAMIE, WY 52071

PRIMARY SPONSOR

U. S. DEPT. OF ENERGY
921 S. W. WASHINGTON ST., SUITE 160
PORTLAND, OR 97205

PRIMARY FUNDING AMOUNT

34,765

TIME FRAME

SEPT. 1977 TO JULY 1979

LOCATION

WY

ABSTRACT

TO DEVELOP AND EFFECTUATE METHODS FOR COMMERCIALIZING SOLAR ENERGY PROCESSES (PASSIVE AND ACTIVE SPACE HEATING/COOLING, HOT WATER HEATING, BIOMASS, SMALL WIND GENERATION, ETC.). THIS IS DONE BY USING AVAILABLE TECHNOLOGY AND FAMILIARIZING CONTRACTORS, HOME OWNERS, FINANCIERS, ARCHITECTS, AND OTHERS WITH THE POSSIBILITIES.

REPORTS AND PUBLICATIONS

NO FORMAL REPORTS - SEVERAL WORKSHOP DOCUMENTS AND NEWSPAPER COLUMNS

PUBLICATIONS ADDRESS
WYOMING SOLAR OFFICE
UNIV. OF WYOMING, INST. OF ENERGY & ENV.
LARAMIE, WY 82071

00001543

PROJECT TITLE
THIN FILM PHOTOVOLTAICS
INVESTIGATOR(S)
R. J. SOUKUP
RESEARCH INSTITUTION
UNIV. OF NEBRASKA, DEPT. OF ELECTRICAL ENG.
LINCOLN, NE 68588
PRIMARY SPONSOR
UNIV. OF NEBRASKA
LINCOLN, NE 68588
PRIMARY FUNDING AMOUNT
NOT AVAILABLE
TIME FRAME
OPEN
LOCATION
NATIONWIDE APPLICABILITY
ABSTRACT

AS A CONSEQUENCE OF THE RAPIDLY DIMINISHING SUPPLY OF CONVENTIONAL ENERGY SOURCES A MAJOR EFFORT TO DEVELOP ALTERNATIVE SOURCES IS NECESSARY. THE DIRECT CONVERSION OF SOLAR ENERGY INTO ELECTRICITY VIA PHOTOVOLTAICS IS AN ATTRACTIVE ALTERNATE SOURCE WHICH OFFERS THE POTENTIAL OF PRODUCING ELECTRICAL ENERGY FROM AN INEXHAUSTIBLE SOURCE. AT THE PRESENT TIME, SOLAR CELLS DO NOT PRODUCE ENOUGH ELECTRICAL POWER PER DOLLAR OF COST TO BE COMPETITIVE WITH CONVENTIONAL SOURCES. THUS, A MAJOR GOAL OF SOLAR CELL RESEARCH IS TO LOWER THE COST OF FABRICATION WHILE STILL MAINTAINING A RELATIVELY HIGH CONVERSION EFFICIENCY. IT IS PROPOSED TO STUDY A THIN FILM, GAAS, BACKWALL MIS SCHOTTKY BARRIER SOLAR CELL. IT IS BELIEVED THAT ONLY THIN FILM SOLAR CELLS CAN BE PRODUCED INEXPENSIVELY ENOUGH TO BE COMPETITIVE WITH OTHER SOURCES. RESEARCH IS NECESSARY IN ORDER TO ALSO MAINTAIN RELATIVELY HIGH EFFICIENCIES FOR THIN FILM SOLAR CELLS. A MATHEMATICAL ANALYSIS IS PRESENTED WHICH DEMONSTRATES THAT REASONABLE EFFICIENCIES, AS HIGH AS 6%, ARE PREDICTED FOR THIS STRUCTURE WITH RATHER POOR ELECTRICAL PROPERTIES OF THE GAAS FILMS, I.E. ELECTRON AND HOLE MOBILITIES NEARLY THREE ORDERS OF MAGNITUDE BELOW THAT OF SINGLE CRYSTAL GAAS. THE MATHEMATICAL MODEL CONCENTRATES ON THE AL-AL2O3-GAAS-METAL STRUCTURE AND INCORPORATES THE FOLLOWING FACTORS: 1) SHORT CIRCUIT CURRENT DENSITY, 2) THE MIS SCHOTTKY BARRIER JUNCTION BEHAVIOR, 3) RESISTIVE LOSSES, AND 4) REFLECTION LOSSES. IT IS ALSO DEMONSTRATED THAT EFFICIENCIES OF WELL OVER 15% ARE POSSIBLE FOR THIS STRUCTURE IF THE GAAS FILM HAS EXCELLENT ELECTRICAL PROPERTIES.

REPORTS AND PUBLICATIONS
SOUKUP, R. J. AND L. A. AKERS. 1978. COMPARATIVE CALCULATIONS FOR THIN-FILM AND BULK SINGLE CRYSTAL SCHOTTKY BARRIER SOLAR CELLS. J. APPL. PHYS. 49, 4031.
KRAUTER, B. L. AND R. J. SOUKUP. 1979. AN ANALYTICAL MODEL OF A BACKWALL MIS SCHOTTKY BARRIER SOLAR CELL. PROC. ENERGY & TECHNOLOGY PP. 1-6.
PUBLICATIONS ADDRESS
R. J. SOUKUP
UNIV. OF NEBRASKA, DEPT. OF ELECTRICAL ENG.
LINCOLN, NE 68588

3.3 WIND ENERGY

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00001544
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PROJECT TITLE
   WIND-HYDROELECTRIC ENERGY PROJECT / WIND-HYDROELECTRIC
   ENERGY INTEGRATION STUDY / SYSTEM VERIFICATION
   INSTALLATION.
INVESTIGATOR(S)
   LARRY L. NELSON
RESEARCH INSTITUTION
   U. S. BUREAU OF RECLAMATION
   REGIONAL OFFICE, LOWER MISSOURI REGION
   BLDG. 20, DENVER FEDERAL CENTER, DENVER, CO 80225
COOPERATOR
   U. S. DEPT. OF ENERGY
   NATIONAL AERONAUTIC & SPACE ADMIN.
PRIMARY SPONSOR
   U. S. BUREAU OF RECLAMATION
PRIMARY FUNDING AMOUNT
   3,068,836
TIME FRAME
   JAN. 1978 TO SEPT. 1981
LOCATION
   WY - ALBANY CO.; CARBON CO.; MEDICINE BOW
ABSTRACT
   THE INVESTIGATION IS STUDYING THE FEASIBILITY OF LARGE-
   SCALE DEVELOPMENT OF WIND TURBINE GENERATORS (WTG) FROM
   1.0 TO 5.0 MW INSTALLED CAPACITY WITH A WIND FIELD OF
   ABOUT 100 MW.  THE STUDY IS EVALUATING THE INTEGRATION
   OF WIND POWER WITH COLORADO RIVER STORAGE PROJECT HYDRO
   CAPACITY TO PRODUCE MARKETABLE PEAKING ENERGY TO CONSERVE
   OIL AND RELIEVE CRITICAL POWER SHORTAGES.  ECOLOGICAL
   CONDITIONS ASSOCIATED WITH LARGE NUMBERS OF WTG'S ARE
   BEING INVESTIGATED.  POWER MARKET ANALYSIS WOULD BE
   COORDINATED WITH PREFERENCE CUSTOMERS, RURAL ELECTRIC
   ASSOCIATIONS AND LOCAL UTILITIES.  THE PROJECT WILL
   INCLUDE A SYSTEM VERIFICATION INSTALLATION WHICH WILL
   INCLUDE DESIGN, CONSTRUCTION, AND TEST OPERATION OF ONE OR
   MORE WIND TURBINE UNITS WITH AN INTERCONNECTED RECLAMATION
   HYDROELECTRIC SYSTEM AND APPURTENANT MONITORING AND
   AND TEST EQUIPMENT.
REPORTS AND PUBLICATIONS
   WIND HYDROELECTRIC ENERGY INTEGRATION STUDY
   WIND ENERGY ENVIRONMENTAL ASSESSMENT REPORT
PUBLICATIONS ADDRESS
   BUREAU OF RECLAMATION
   REGIONAL OFFICE, LOWER MISSOURI REGION
   P. O. BOX 25247, DENVER FED. CENTER, DENVER, CO 80225
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00001545
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PROJECT TITLE
   WIND DATA COLLECTION PROGRAM NEAR MEDICINE BOW, WYOMING.
INVESTIGATOR(S)
   JOHN D. MARWITZ
   BROOKS MARTNER
RESEARCH INSTITUTION
   UNIV. OF WYOMING, DEPT. OF ATMOSPHERIC SCIENCE
   P. O. BOX 3038, UNIVERSITY STATION
   LARAMIE, WY 82071
PRIMARY SPONSOR
   U. S. BUREAU OF RECLAMATION
   P. O. BOX 25247
   DENVER, CO 80225
PRIMARY FUNDING AMOUNT
   141,600
TIME FRAME
   JULY 1979 TO FEB. 1981
LOCATION
   WY - ALBANY CO.; CARBON CO.; MEDICINE BOW
ABSTRACT
   THE PURPOSE OF THIS CONTRACT IS TO OBTAIN A BETTER UNDER-
   STANDING OF THE WIND AND ITS CHARACTERISTICS IN THE
   MEDICINE BOW AREA IN ORDER TO MAKE THE NECESSARY EVALUATIONS
   REQUIRED TO ESTABLISH THE BEST POTENTIAL SITES FOR THE
   INSTALLATION OF WIND TURBINES.  THE CONTRACT WILL INCLUDE,
   AS A MINIMUM, THE COLLECTION, REDUCTION, AND ANALYSIS
   OF WIND AND TEMPERATURE DATA AS INCLUDED HEREIN FOR ABOUT
   20 MONTHS COMMENCING ON OR BEFORE JULY 31, 1979 AND
   ENDING ON OR BEFORE MARCH 31, 1981.  IT WILL FURTHER
   INCLUDE REPORTING OF THE RESULTS IN THE FORM OF NARRATIVE
   REPORTS, CURVES, TABLES, AND REDUCED DATA ON COMPUTER
   CARDS OR COMPUTER TAPES.  THE MAIN OBJECTIVES OF THIS
   CONTRACT ARE TO EVALUATE CANDIDATE SITES FOR WIND TURBINES
   AND TO PROVIDE A COMPREHENSIVE SURVEY OF THE WINDS IN THE
   MEDICINE BOW AREA, WHICH IS LOCATED IN THE THROAT OF A
   NATURAL VENTURI FORMED BY THE SHIRLEY MOUNTAINS TO THE
   NORTH AND THE MEDICINE BOW RANGE TO THE SOUTH.
REPORTS AND PUBLICATIONS
   NONE
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3.4 GEOTHERMAL ENERGY

00001546

PROJECT TITLE
DIRECT UTILIZATION OF GEOTHERMAL ENERGY IN WESTERN SOUTH DAKOTA AGRIBUSINESS.
SOURCE NUMBER
77-149:2552
INVESTIGATOR(S)
S. M. HOWARD
DAN CARDA
RESEARCH INSTITUTION
SOUTH DAKOTA SCHOOL OF MINES & TECH.
RAPID CITY, SD 57701
COOPERATOR
RE/SPEC, INC.
P. O. BOX 725
RAPID CITY, SD 57709
PRIMARY SPONSOR
U. S. DEPT. OF ENERGY
E. G. & G. BOX 1625
IDAHO FALLS, ID 83401
SECONDARY SPONSOR
DIAMOND RING RANCH
MIDLAND, SD
PRIMARY FUNDING AMOUNT
246,582
SECONDARY FUNDING AMOUNT
140,100
TIME FRAME
JUNE 1978 TO JUNE 1981
LOCATION
SD - HAAKON CO.; MIDLAND; DIAMOND RING RANCH
ABSTRACT
THIS PROJECT INVOLVES THE DIRECT UTILIZATION OF GEOTHERMAL ENERGY FOR: 1) SPACE HEATING OF FARM AND RANCH BUILDINGS; 2) DRYING GRAIN; AND 3) PROVIDING WARM STOCK WATER DURING THE WINTER. THIS SITE IS CENTRALLY LOCATED IN THE WESTERN REGION OF SOUTH DAKOTA AT THE DIAMOND RING RANCH NORTH OF MIDLAND, SOUTH DAKOTA.

00001547

PROJECT TITLE
WYOMING COMMERCIALIZATION OF GEOTHERMAL ENERGY RESOURCES.
SOURCE NUMBER
43-8272
INVESTIGATOR(S)
E. GERALD MEYER
RICHARD W. JAMES
RESEARCH INSTITUTION
UNIV. OF WYOMING
BOX 3355, UNIVERSITY STATION
LARAMIE, WY 82071
PRIMARY SPONSOR
U. S. DEPT. OF ENERGY
IDAHO OPERATIONS OFFICE
550 SECOND ST. / IDAHO FALLS, ID 83401
PRIMARY FUNDING AMOUNT
51,758
TIME FRAME
DEC. 1978 TO DEC. 1979
LOCATION
WY
ABSTRACT
THE UNIVERSITY OF WYOMING IN CONTRACT WITH THE U. S. DEPT. OF ENERGY BEGAN THE WYOMING GEOTHERMAL COMMERCIALIZATION AND UTILIZATION PROGRAM IN DECEMBER, 1978. THE PROGRAM EVOLVED TO BECOME THE WYOMING GEOTHERMAL COMMERCIALIZATION PROGRAM WHICH IS ADMINISTERED BY THE WYOMING GEOTHERMAL COMMERCIALIZATION OFFICE (GCO). THE GCO IS LOCATED IN THE INSTITUTE OF ENERGY AND ENVIRONMENT ON THE CAMPUS OF THE UNIVERSITY OF WYOMING IN LARAMIE. THE PURPOSE OF THE WYOMING GEOTHERMAL COMMERCIALIZATION PROGRAM IS TO MATCH GEOTHERMAL RESOURCES WITH POTENTIAL USERS AND APPLICATIONS. THE PROGRAM ALSO IS TO BE A CLEARING HOUSE OF GEOTHERMAL DEVELOPMENT INFORMATION AND A LINK TO WYOMING GEOTHERMAL RESOURCE DATA. THE OBJECTIVES OF THE GCO ARE: 1) TO BRING ABOUT A GENERAL UNDERSTANDING OF GEOTHERMAL ENERGY AND ITS POTENTIALS IN WYOMING; 2) TO CREATE A WORKING RELATIONSHIP WITH OTHER AGENCIES INVOLVED IN GEOTHERMAL DEVELOPMENT, BOTH STATE AND FEDERAL; 3) TO DEVELOP USABLE PLANS TO PREDICT GEOTHERMAL DEVELOPMENT OVER THE NEXT 40 YEARS; 4) TO MAINTAIN REGIONAL TIES WITH OTHER STATES AND CONTRIBUTE TO THE ACCOMPLISHMENT OF NATIONAL GEOTHERMAL ENERGY GOALS OF THE U. S. DEPT. OF ENERGY; AND 5) TO ASSESS THE INSTITUTIONAL BARRIERS TO DEVELOPMENT OF GEOTHERMAL ENERGY. THE GCO APPROACH IS IS PRIMARILY A PLANNING AND ADVOCACY EFFORT. THE OFFICE IN COOPERATION WITH STATE AGENCIES, BUSINESSES AND CONCERNED CITIZEN GROUPS USES A VARIETY OF PUBLICATIONS AND INFORMATION SOURCES TO DEVELOP AN AWARENESS OF GEOTHERMAL ENERGY. ADDITIONALLY THE SPECIFIC DEVELOPMENT PLANS PROVIDE A GENERAL VIEW OF THE FUTURE FOR GEOTHERMAL ENERGY IN WYOMING.
REPORTS AND PUBLICATIONS
SEMI-ANNUAL REPORT OF THE WYOMING GEOTHERMAL COMMERCIALIZATION OFFICE, DEC. 1, 1978-JULY 1979.
JAMES, RICHARD W. 1979. GEOTHERMAL ENERGY IN WYOMING: SITE DATA BASE AND DEVELOPMENT STATUS.
BIG HORN BASIN AREA DEVELOPMENT PLAN.
FREMONT COUNTY AREA DEVELOPMENT PLAN.
GEOTHERMAL GASAHOL - A SITE SPECIFIC DEVELOPMENT ANALYSIS.
PUBLICATIONS ADDRESS

WYOMING GEOTHERMAL COMMERCIALIZATION OFFICE
UNIVERSITY STATION BOX 3965
LARAMIE, WY 82071 / ATTN: R. W. JAMES

00001548

PROJECT TITLE
AN EVALUATION OF HYDROTHERMAL RESOURCES OF NORTH DAKOTA.
INVESTIGATOR(S)
KENNETH L. HARRIS (NDGS)
SIDNEY B. ANDERSON (NDGS)
LARAMIE WINCZESKI (UND)
RESEARCH INSTITUTION
UNIV. OF NORTH DAKOTA, ENG. EXP. STATION
UNIVERSITY STATION
GRAND FORKS, ND 58202
COOPERATOR
NORTH DAKOTA GEOLOGICAL SURVEY
UNIVERSITY STATION
GRAND FORKS, ND 58202
PRIMARY SPONSOR
U. S. DEPT. OF ENERGY, DIV. OF GEOTHERMAL ENERGY
550 SECOND ST
IDAHO FALLS, IDAHO
PRIMARY FUNDING AMOUNT
41,596
SECONDARY FUNDING AMOUNT
9,547
TIME FRAME
MARCH 1979 TO MARCH 1980
LOCATION
ND
ABSTRACT
THIS STUDY WILL SURVEY EXISTING OIL WELL BOTTOM-HOLE TEMPERATURE DATA AND PRESENT THE RESULTS IN MAP FORM SO THAT THE LOCATION, TEMPERATURE, AND DEPTH OF POTENTIAL HYDROTHERMAL RESERVOIRS MAY BE PRACTICALLY AND ECONOMICALLY EVALUATED. THE AVAILABILITY AND EASE OF INTERPRETATION OF THESE MAPS WILL ENHANCE DEVELOPMENT PROSPECTS FOR LOW- AND MEDIUM-LEVEL HYDROTHERMAL RESERVOIRS. SITE-SPECIFIC EVALUATIONS COULD BE MADE IN SELECTED AREAS, AT A LATER TIME, AS A FURTHER DEVELOPMENT INCENTIVE TO POTENTIAL PRIVATE AND COMMERCIAL DEVELOPERS.

00001549

PROJECT TITLE
GROUNDWATER RESOURCES AND GEOTHERMAL POTENTIAL OF THE TOSTON-RADERSBURG BASIN, MONTANA.
INVESTIGATOR(S)
GLEN WYATT
STEPHAN G. CUSTER
MONTANA STATE UNIV., DEPT. OF EARTH SCIENCES
BOZEMAN, MT 59717
RESEARCH INSTITUTION
MONTANA BUREAU OF MINES & GEOLOGY
BUTTE, MT 59701
PRIMARY SPONSOR
U. S. DEPT. OF ENERGY
PRIMARY FUNDING AMOUNT
2,000
TIME FRAME
APRIL 1979 TO JUNE 1980
LOCATION
MT - BROADWATER CO.; RADERSBURG BASIN; MISSOURI RIVER BASIN
ABSTRACT
THIS PROJECT WILL DETERMINE THE GEOTHERMAL POTENTIAL OF THE TOSTON-RADERSBURG BASIN. MAPPING WARM (15-22.5 DEGREE C) WATERS FROM SPRINGS AND WELLS. A GEOTHERMAL GRADIENT OF APPROXIMATELY 1 DEGREE C PER 100 FEET WILL BE USED TO ESTIMATE DEPTH OF CIRCULATION.

00001550

PROJECT TITLE
PERFORMANCE MONITORING OF SELECT GROUNDWATER HEAT PUMP INSTALLATIONS IN NORTH DAKOTA.
SOURCE NUMBER
10073166
INVESTIGATOR(S)
DON V. MATHSEN
RESEARCH INSTITUTION
UNIV. OF NORTH DAKOTA, ENG. EXP. STATION
UNIV. STATION, BOX 8103
GRAND FORKS ND 58202
PRIMARY SPONSOR
OLD WEST REGIONAL COMMISSION
228 HEDDEN EMPIRE BLDG.
BILLINGS MT 59101
PRIMARY FUNDING AMOUNT
24,802
TIME FRAME
MAY 1980 TO SEPT. 1981
LOCATION
ND
ABSTRACT
THE GROUND WATER SOURCE HEAT PUMP HOLDS SIGNIFICANT POTENTIAL FOR PROVIDING EFFICIENT USE OF ELECTRICITY IN BOTH SPACE HEATING AND COOLING WHILE UTILIZING A RENEWABLE ENERGY RESOURCE (I.E. SOLAR AND GEOTHERMAL ENERGY STORED IN GROUND WATER). PRIOR TO LARGE SCALE COMMERCIALIZATION OF THESE SYSTEMS, HOWEVER, CERTAIN

CHARACTERISTICS OF THEIR ENERGY USAGE AND ENVIRONMENTAL SHOULD BE KNOWN. THE MOST IMPORTANT OPERATIONAL PARAMETERS TO BE DETERMINED ARE: 1) ACTUAL ENERGY SAVINGS EXPERIENCED DURING THE COURSE OF A YEAR; 2) OPERATIONAL PROBLEMS OR MAINTENANCE ITEMS CHARACTERISTIC OF THE SYSTEM; 3) THE NET ENERGY EXTRACTED FROM THE GROUND WATER SUPPLY DURING THE COURSE OF A YEAR; AND 4) VARIATIONS IN SYSTEM PERFORMANCE BASED ON DESIGN DIFFERENCES AND LOCAL GROUND WATER TEMPERATURES. THE PURPOSE OF THIS MONITORING PROGRAM IS TO PROCURE THE ABOVE INFORMATION ON UP TO TEN INSTALLATIONS OPERATING DURING 1980. THE STUDY WILL ALSO SERVE AS A REFERENCE DOCUMENT FOR FUTURE INSTALLATIONS IN THE METHODS OF WATER HANDLING AND DISPOSAL CURRENTLY EMPLOYED.

3.5 HYDROPOWER

00001551

PROJECT TITLE
   NORTH PLATTE RIVER HYDROELECTRIC STUDY.
INVESTIGATOR(S)
   LARRY L. NELSON
RESEARCH INSTITUTION
   U. S. BUREAU OF RECLAMATION
   REGIONAL OFFICE, LOWER MISSOURI REGION
   BLDG. 20, DENVER FEDERAL CENTER / DENVER, CO 80225
COOPERATOR
   U. S. FISH & WILDLIFE SERV.
   U. S. BUREAU OF LAND MANAGEMENT
   WYOMING GAME & FISH COMMISSION
PRIMARY SPONSOR
   U. S. BUREAU OF RECLAMATION
   REGIONAL OFFICE, LOWER MISSOURI REGION
   BLDG. 20, DENVER FEDERAL CENTER / DENVER, CO 80225
PRIMARY FUNDING AMOUNT
   353,753
TIME FRAME
   OCT. 1977 TO OCT. 1979
LOCATION
   WY - CARBON CO.; NATRONA CO.; NORTH PLATTE RIVER BASIN
ABSTRACT
   THIS REPORT SUMMARIZES APPRAISAL INVESTIGATIONS FOR INCREASING THE GENERATION CAPABILITIES OF THE BUREAU OF RECLAMATION'S EXISTING NORTH PLATTE RIVER BASIN POWER SYSTEM. THE ENERGYAND INCREASED CAPACITY WOULD BE MARKETED WITHIN THE WESTERN DIVISION OF THE PICK-SLOAN MISSOURI BASIN PROGRAM, SERVING EASTERN WYOMING, WESTERN NEBRASKA, AND NORTHEASTERN COLORADO. THESE POTENTIAL POWER DEVELOPMENTS INCLUDE TWO LARGE PUMPED-STORAGE POWER PLANTS TO FURNISH PEAKING POWER TO THE SYSTEM, AN ADDITIONAL HYDROELECTRIC UNIT AT THE EXISTING FREMONT CANYON POWERPLANT, AND A LOW-HEAD DAM AND POWERPLANT BELOW ALCOVA DAM AT A SITE NEAR BESSEMER BEND.
REPORTS AND PUBLICATIONS
   NORTH PLATTE RIVER HYDROELECTRIC STUDY
PUBLICATIONS ADDRESS
   BUREAU OF RECLAMATION
   P. O. BOX 25247
   DENVER FEDERAL CENTER / DENVER, CO 80225

3.6 OTHER

00001552

PROJECT TITLE
SOUTH DAKOTA ALCOHOL FUELS RESEARCH PROJECT
SOURCE NUMBER
10074124
INVESTIGATOR(S)
VERN BREKKE
RESEARCH INSTITUTION
SOUTH DAKOTA STATE OFFICE OF ENERGY POLICY
CAPITOL LAKE PLAZA
PIERRE, SD 57501
PRIMARY SPONSOR
OLD WEST REGIONAL COMMISSION
228 HEDDEN EMPIRE BLDG.
BILLINGS, MT 59101
PRIMARY FUNDING AMOUNT
25,000
TIME FRAME
DEC. 1979 TO DEC. 1980
LOCATION
SD
ABSTRACT

THE OBJECTIVES OF THE STUDY ARE: 1) TO PROVIDE A FOCAL POINT FOR RESEARCH AND INVESTIGATION IN THE STATE AND REGION CONCERNING ALCOHOL FUEL PRODUCTION AT SOUTH DAKOTA STATE UNIVERSITY; 2) TO INVESTIGATE ALCOHOL FUEL PRODUCTION, UTILIZATION AND BY-PRODUCT UTILIZATION ON A SMALL-OR COMMUNITY SCALE; 3) TO DETERMINE IF SMALL SCALE ALCOHOL PRODUCTION CAN PROVIDE SOUTH DAKOTA WITH A STABLE ENERGY COST AND SUPPLY; 4) TO DETERMINE THE MOST EFFECTIVE AND ECONOMICAL MEANS OF PRODUCING ALCOHOL; 5) TO PROVIDE SOUTH DAKOTA AGRICULTURE AN ADDITIONAL MARKET FOR AGRICULTURAL GOODS; 6) TO REDUCE THE EFFECT OF DECLINING RAIL TRANSPORTATION ON MARKETING AGRICULTURE PRODUCTS; 7) TO PROVIDE INFORMATION AND EDUCATION TO THOSE ATTEMPTING TO INVOLVE THEMSELVES IN ALCOHOL FUEL PRODUCTION; AND 8) TO PROVIDE THE COMMISSION WITH RECOMMENDATIONS CONCERNING THE SUPPORT OF SMALL SCALE AND COMMUNITY SCALE ALCOHOL PRODUCTION.

00001553

PROJECT TITLE
FEASIBILITY OF ETHANOL PRODUCTION FROM SUGAR BEETS WITH MODIFICATION TO PRESENT SUGAR PLANTS
SOURCE NUMBER
22
INVESTIGATOR(S)
DR. ROBERT E. J. RETZLAFF
RESEARCH INSTITUTION
UNIV. OF NEBRASKA, PANHANDLE EXT. OFFICE
SCOTTSBLUFF NE
PRIMARY SPONSOR
STATE OF NEBRASKA
AGRICULTURAL PRODUCTS INDUSTRIAL UTILIZATION COMMITTEE
301 CENTENNIAL MALL SOUTH
LINCOLN NE 68509
PRIMARY FUNDING AMOUNT
3,000
TIME FRAME
JUNE 1978 TO CONTINUING
LOCATION
REGIONAL APPLICABILITY
ABSTRACT

THE OBJECTIVES OF THE PROJECT ARE TO: 1) DETERMINE IF ETHANOL PRODUCTION FROM SUGAR BEETS IS ECONOMICALLY FEASIBLE. THIS INFORMATION WOULD BE USEFUL IN APPROACHING THE SUGAR COMPANY AND TO NEGOTIATE THE ATTACHMENT OF AN ETHANOL FACILITY TO THE SUGAR FACTORY. 2) IF THE ECONOMICS ARE PRESENT, THE SUGAR BEET GROWER MAY BE WILLING TO ASSIST IN THE MAINTENANCE OF THE SUGAR PLANT, PARTICULARLY IF THE VIABILITY OF THE SUGAR INDUSTRY IS PRESERVED AND IF SUGAR BEETS RAISED FOR ETHANOL PRODUCTION PROVIDE AN OPPORTUNITY FOR PROFITS. THE INFORMATION FROM THE FEASIBILITY STUDY IS NECESSARY BEFORE THE BEET GROWERS ASSOCIATION CAN MAKE A CONCRETE DECISION.

00001554

PROJECT TITLE
FEASIBILITY OF PRODUCING ALCOHOL FROM CHEESE WHEY.
SOURCE NUMBER
21
INVESTIGATOR(S)
DR. KHEM M. SHAHANI
RESEARCH INSTITUTION
UNIV. OF NEBRASKA
DEPT. OF FOOD SCIENCE & TECH
LINCOLN, NE 68503
PRIMARY SPONSOR
STATE OF NEBRASKA
AGRICULTURAL PRODUCTS INDUSTRIAL UTILIZATION COMMITTEE
3RD FLOOR 301 CENTENNIAL MALL SOUTH
LINCOLN, NE 68509
PRIMARY FUNDING AMOUNT
17,000
TIME FRAME
JUNE 1978 TO CONTINUING
LOCATION

NE - LANCASTER CO.
ABSTRACT

THE OBJECTIVES OF THIS PROJECT ARE TO: 1) OPTIMIZE AND STANDARDIZE LACTOSE RECOVERY FROM WHEY; 2) OPTIMIZE LACTASE FERMENTATION IN LACTASE:GRAIN MIXTURES FOR ETHANOL PRODUCTION; 3) QUANTITATE ALCOHOL YIELDS; 4) TO ANALYZE THE NUTRIENT CONTENT OF PROTEIN CONCENTRATE FOR HUMAN FOOD USES; AND 5) TO ANALYZE THE NUTRIENT CONTENT OF THE BY-PRODUCTS TO BE USED FOR ANIMAL FEED.

00001555

PROJECT TITLE
BIOCONVERSION OF ANIMAL MANURE TO METHANE GAS USING AN INNOVATIVE PLUG-FLOW DIGESTER.
INVESTIGATOR(S)
DENNIS D. SCHULTE
RESEARCH INSTITUTION
UNIV. OF NEBRASKA, DEPT. OF AG. ENGINEERING
LINCOLN, NE 68583
PRIMARY SPONSOR
U. S. DEPT. OF ENERGY
KANSAS CITY, MO
SECONDARY SPONSOR
UNIV. OF NEBRASKA, AG. EXP. STATION
LINCOLN, NE 68583
PRIMARY FUNDING AMOUNT
36,274
SECONDARY FUNDING AMOUNT
8,000
TIME FRAME
AUG. 1979 TO AUG. 1981
LOCATION
NE - LANCASTER CO.
ABSTRACT

THE OBJECTIVE OF THE PROPOSED PROJECT IS TO REDUCE THE DEPENDENCE OF RURAL FARMS AND FARM COMMUNITIES ON EXTERNAL SOURCES OF ENERGY. TO ACCOMPLISH THIS, THE PROJECT IS INTENDED TO PURSUE METHODS OF REDUCING THE INITIAL AND OPERATING COSTS OF ANAEROBIC DIGESTERS USED TO PRODUCE METHANE GAS FROM ANIMAL MANURE. THE SPECIFIC METHOD OF ACCOMPLISHING THESE BROAD OBJECTIVES INVOLVES DEVELOPMENT OF AN IMPROVED METHOD OF ENERGY RECOVERY FROM ANIMAL MANURE USING A HIGH-SOLIDS, PLUG-FLOW ANAEROBIC DIGESTER.

REPORTS AND PUBLICATIONS
NONE

00001556

PROJECT TITLE
FACTORS AFFECTING BIOCONVERSION AND METHANOGENESIS IN ANAEROBIC DIGESTION
SOURCE NUMBER
GC2-6000331
INVESTIGATOR(S)
JOHN E. ROBBINS
MEL ARNOLD
RESEARCH INSTITUTION
MONTANA STATE UNIV.
BOZEMAN, MT 59717
PRIMARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION
32 S. EWING
HELENA, MT 59601
SECONDARY SPONSOR
MONTANA AG. EXP. STATION
PRIMARY FUNDING AMOUNT
66,333
SECONDARY FUNDING AMOUNT
23,500
TIME FRAME
MAY 1980 TO APRIL 1981
LOCATION
MT - GALLATIN CO.
ABSTRACT

THE PURPOSE OF THIS STUDY IS TO INCREASE METHANE YIELD AND INSURE A STABLE FERMENTATION. OUR OBJECTIVES ARE TO: 1) EVALUATE THE FAILURE PROCESS OF DIGESTERS RECEIVING HIGH CONCENTRATIONS OF NUTRIENTS OR SHORT RETENTION TIMES. THE METABOLIC ACTIVITY OF THE MICROBIAL FLORA WILL BE MONITORED VIA ANALYSES OF GAS PRODUCTION, VOLATILE ACIDS, AMMONIUM ION AND PH; 2) THE OPTIMUM LOADING CONDITOINS WILL BE DEFINED FOR MAXIMUM METHANE PRODUCTION, STABLE FERMENTATION, AND REASONABLE VOLATILE SOLIDS DESTRUCTION; AND 3) APPROPRIATE MONITORING ANALYSES THAT SIGNAL THE ONSET OF DIGESTER FAILURE WILL BE ESTABLISHED. THE APPROACH WILL BE TO STRESS ANAEROBIC DIGESTERS WITH HIGH ENERGY LOADS AND MONITOR THE FLOW OF SUBSTRATES THROUGH THE ECOSYSTEM TO METHANE AND CO2. THE RATE LIMITING PROCESSES SHOULD BECOME EVIDENT UNDER THESE CONDITIONS. ONCE THESE ARE IDENTIFIED SOLUTIONS TO CIRCUMVENT OR AVOID THE BOTTLENECKS CAN BE PROPOSED. FOR EXAMPLE, IF UNDER HIGH ENERGY LOADS ACCUMULATION OF VOLATILE ACIDS, SUCH AS PROPIONATE AND BUTYRATE, ARE SEEN TO ACCUMULATE, THAN AN ADJUSTMENT OF THE ENERGY LOAD MAY BE MADE SUCH THAT AN ENRICHMENT OF THE ACETOGENIC CLASS OF ANAEROBES WOULD OCCUR. THIS WOULD GREATLY ENHANCE THE KINETICS OF METHANATION OF THESE VOLATILE ACIDS.

REPORTS AND PUBLICATIONS
ROBBINS, JOHN E. AND MELVIN T. ARNOLD. BIOCONVERSION OF WASTE: AN ATTEMPT TO INCREASE EFFICIENCY. REPORTS SUBMITTED QUARTERLY.
PUBLICATIONS ADDRESS
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION

RENEWABLE ALTERNATIVE ENERGY DIVISION
32 SOUTH EWING / HELENA, MT 59601

4.0 NUCLEAR ENERGY

00001557

PROJECT TITLE
INITIATIVE 80 - REPORTS ON IMPACTS, CAMPAIGN RE NUCLEAR PLANT SITING IN MONTANA, VOTER POLL
INVESTIGATOR(S)
MIKE MALES
RESEARCH INSTITUTION
NUCLEAR VOTE
613 S. RODNEY
HELENA, MT 59601
COOPERATOR
NORTHERN ROCKIES ACTION GROUP
PRIMARY SPONSOR
NUCLEAR VOTE
613 S. RODNEY
HELENA, MT 59601
SECONDARY SPONSOR
ENVIRONMENTAL INFORMATION CENTER
PRIMARY FUNDING AMOUNT
NOT AVAILABLE
TIME FRAME
MARCH 1978 TO DEC. 1978
LOCATION
MT
ABSTRACT
DUE TO WEAK LAWS GOVERNING NUCLEAR PLANT SITING IN MONTANA AND THE LACK OF CITIZEN CONTROL OVER SITING, THE OBJECTIVE OF THIS PROJECT WAS THE ENACTMENT OF STRONG CONTROLS REGARDING NUCLEAR WASTE HANDLING, BONDING, EMERGENCY SYSTEM TESTING, DAMAGE LIABILITY, AND MANDATORY VOTER APPROVAL BY PLACING INITIATIVE 80 ON THE NOVEMBER GENERAL ELECTION BALLOT, 1978, WHICH PASSED WITH 65.1% OF THE VOTE.
REPORTS AND PUBLICATIONS
INITIATIVE 80 PRESS PACKET - NEED FOR MEASURE, DESCRIPTION, ARGUMENTS (NUCLEAR VOTE SEPT. 1978).
"INITIATIVE 80 OPPONENTS DEFEAT THEMSELVES" DOWN TO EARTH, DEC. 1978.
"INITIATIVE 80" BORROWED TIMES, JAN. 1979
INITIATIVE 80 VOTER SURVEY, DEC. 1978.
PUBLICATIONS ADDRESS
NUCLEAR VOTE, 613 S. RODNEY, HELENA MT 59601.
PLEASE ACCOMPANY REQUESTS FOR INFORMATION WITH $2.00 FOR POSTAGE & COPYING.

00001558

PROJECT TITLE
THE PROPOSED ROLE OF URANGESELLSCHAFT IN SOCIOECONOMIC IMPACT MITIGATION.
SOURCE NUMBER
78-172
INVESTIGATOR(S)
EDWARD F. HARVEY
FORD C. FRICK
RESEARCH INSTITUTION
BBC & ASSOCIATES
100 SOUTH MADISON
DENVER, CO 80209
PRIMARY SPONSOR
URANGESELLSCHAFT U. S. A.
6000 E. EVANS AVE., BLDG. 3, SUITE 200
DENVER, CO 80222
PRIMARY FUNDING AMOUNT
6,260
TIME FRAME
SEPT. 1978 TO DEC. 1978
LOCATION
WY - CARBON CO.; BAGGS
ABSTRACT
THE OBJECTIVE OF THE REPORT IS TO EVALUATE THE SOCIOECONOMIC IMPACT RESULTING FROM THE JUNIPER RIDGE URANIUM EXPLORATION PROJECT IN CARBON COUNTY, WYOMING AND RECOMMEND A SOCIO-ECONOMIC MITIGATION STRATEGY FOR URANGESELLSCHAFT.
REPORTS AND PUBLICATIONS
REPORTS NOT AVAILABLE.

00001559

PROJECT TITLE
NINE MILE/RENO RANCH SOCIOECONOMIC RESEARCH
SOURCE NUMBER
78-151
INVESTIGATOR(S)
EDWARD F. HARVEY
JACK POTTLE
RESEARCH INSTITUTION
BBC & ASSOCIATES
100 SOUTH MADISON
DENVER, CO 80209
PRIMARY SPONSOR
ROCKY MOUNTAIN ENERGY CO.
4704 HARLAN ST.
DENVER, CO 80212
PRIMARY FUNDING AMOUNT
18,000
TIME FRAME
JUNE 1978 TO OCT. 1978
LOCATION
WY - NATRONA CO.; CASPER

ABSTRACT

SOCIOECONOMIC RESEARCH IS BEING PREPARED ON THE PROPOSED ROCKY MOUNTAIN ENERGY COMPANY'S (RMEC) NINE MILE LAKE URANIUM DEVELOPMENT. ONE SECTION EXAMINES HUMAN ACTIVITY AND LAND USE WITHIN A FIVE MILE RADIUS OF THE SOCIOECONOMIC CONDITIONS WITHIN THE NINE MILE PROJECT. DEMOGRAPHIC AND ECONOMIC CONDITIONS, HOUSING, PUBLIC FACILITIES, AND SERVICES ARE ADDRESSED. BASELINE PROJECTIONS ARE ALSO PROVIDED. THE LAST TWO SECTIONS ARE IDENTIFICATION OF THE SOCIOECONOMIC IMPACTS OF THE NINE MILE PROJECT ON CASPER AND NATRONA COUNTY AND A COST-BENEFIT ANALYSIS OF THE SOCIOECONOMIC EFFECTS OF THE NINE MILE DEVELOPMENT. AN ANALYSIS OF THE HISTORICAL AND VISUAL IMPACTS OF THE NINE MILE PROJECT WAS ALSO PREPARED AS PART OF THIS PROJECT.

REPORTS AND PUBLICATIONS

REPORTS NOT AVAILABLE

00001560

PROJECT TITLE

GEOCHEMICAL INVESTIGATIONS OF INACTIVE MILL TAILINGS

INVESTIGATOR(S)

DR. G. MARKOS
KATHRYN J. BUSH

RESEARCH INSTITUTION

SOUTH DAKOTA SCHOOL OF MINES & TECH.
RAPID CITY, SD 57701

PRIMARY SPONSOR

U. S. DEPT. OF ENERGY

PRIMARY FUNDING AMOUNT

171,000

TIME FRAME

OCT. 1979 TO SEPT. 1980

LOCATION

NATIONWIDE APPLICABILITY

ABSTRACT

GEOCHEMICAL STUDIES OF MIGRATION OF TOXIC AND RADIOACTIVE ELEMENTS DUE TO THE PRESENCE OF URANIUM MILL TAILINGS IN THE WESTERN UNITED STATES. EVALUATION OF THE DEGREE OF CONTAMINATION AND PATHWAYS OF CONTAMINANTS. SPECIAL ATTENTION IS GIVEN TO ESTABLISH THE THERMODYNAMIC AND KINETIC PARAMETERS FOR THE DYNAMIC SYSTEM OF THE TAILING AND ITS ENVIRONMENT. THE END PRODUCT OF THIS WORK IS A GENERIC, PREDICTIVE MODEL. TWENTY THREE SITES WILL BE INSPECTED, SAMPLED, AND SAMPLES ANALYZED. RESULTS OF ANALYSIS AND MODELING SHOULD PROVIDE KNOWLEDGE AND RECOMMENDATIONS FOR CONTROLLING UNDESIRABLE CONTAMINANT TRANSPORT AND HELP PROVIDE ANSWERS TO OTHER ENVIRONMENTAL PROBLEMS ASSOCIATED WITH URANIUM MILL TAILINGS.

PUBLICATIONS ADDRESS

DR. G. MARKOS
SOUTH DAKOTA SCHOOL OF MINES & TECH.
RAPID CITY, SD 57701

00001561

PROJECT TITLE

CONTAMINATION OF GROUND AND SURFACE WATER BY URANIUM MINING AND MILLING

INVESTIGATOR(S)

DR. G. M. MARKOS
KATHRYN J. BUSH

RESEARCH INSTITUTION

SOUTH DAKOTA SCHOOL OF MINES & TECH.
RAPID CITY, SD 57701

PRIMARY SPONSOR

U. S. BUREAU OF MINES

PRIMARY FUNDING AMOUNT

96,884

TIME FRAME

JULY 1979 TO SEPT. 1981

LOCATION

NATIONWIDE APPLICABILITY

ABSTRACT

THIS STUDY COMBINES LABORATORY STUDIES AND EXPERIMENTS OF (A) SORPOTION AND ION-EXCHANGE IN COLUMN AND (B) PRECIP/DISSOLUTION PROCESSES, AND DEVELOPMENT AND TESTING OF MATHEMATICAL COMPUTERIZED PREDICTIVE MODELS OF MOVEMENT OF CONTAMINANTS. THE STUDY SHOULD IMPROVE OUR KNOWLEDGE OF THERMODYNAMIC AND KINETIC PARAMETERS FOR THE DYNAMIC SYSTEM OF MILL TAILINGS AND ITS ENVIRONMENT. THIS KNOWLEDGE SHOULD PROVIDE INFORMATION FOR RECOMMENDATIONS FOR CONTAINMENT OF CONTAMINANTS IN MILL TAILINGS.

00001562

PROJECT TITLE

UPDATE OF FINANCIAL ALTERNATIVES FOR STABILIZATION AND RECLAMATION OF URANIUM MILL TAILINGS PILES

SOURCE NUMBER

106880529

INVESTIGATOR(S)

DONALD F. HAUSKNECHT
R. A. ZISKIND

RESEARCH INSTITUTION

SCIENCE APPLICATIONS, INC.
1802 AVENUE OF THE STARS, SUITE 1205
LOS ANGELES, CA 90067

COOPERATOR

U. S. DEPT. OF ENERGY, ARGONNE NATIONAL LAB.
9700 SOUTH CASS AVENUE

ARGONNE, IL 60439
PRIMARY SPONSOR
NUCLEAR REGULATORY COMMISSION
7915 EASTERN AVE.
SILVER SPRINGS MD 20910
PRIMARY FUNDING AMOUNT
NOT AVAILABLE
TIME FRAME
SEPT. 1979 TO NOV. 1979
LOCATION
WY
ABSTRACT

IN RESPONSE TO A REQUEST FROM THE NUCLEAR REGULATORY COMMISSION AND ARGONNE NATIONAL LABORATORY, SCIENCE APPLICATIONS, INC. HAS REVIEWED RECENT DEVELOPMENTS AND INFORMATION TO UPDATE OUR EARLIER STUDY ENTITLED, "FINANCIAL ALTERNATIVES FOR STABILIZATION, RECLAMATION, AND LONG-TERM MONITORING AND MAINTENANCE OF URANIUM MILL TAILING PILES" (1977). MOST OF THE FACTS AND CONCLUSIONS PRESENTED IN THIS ORIGINAL STUDY REMAIN VALID. THIS REVIEW FOCUSSED SOLELY ON THE STABILIZATION AND RECLAMATION SURETY ALTERNATIVES OF BONDING, PERFORMANCE LETTERS OF CREDIT (LOC) AND CERTIFICATES OF DEPOSIT (COD) WITH THE EMPHASIS ON THE FIRST ALTERNATIVE. RECENT RESPONSES BY THE OFFICE OF SURFACE MINING OF THE DEPARTMENT OF THE INTERIOR WERE EXAMINED, AND THEIR IMPLICATIONS, IF ANY, FOR URANIUM WERE DISCUSSED WITH NUMEROUS CONTACTS IN GOVERNMENT AND INDUSTRY. SIMILARLY, A FACT-FINDING EFFORT WAS MADE FOR THE ALTERNATIVES OF LOC AND COD. THE PRIMARY INQUIRY ADDRESSED OBJECTIONS TO THE TYPE OF SURETY, THE AVAILABILITY, STRENGTHS AND WEAKNESSES OF EACH, AND ANY VARIATIONS WHICH HAD BEEN USED FOR SIMILAR PROJECTS. OUR FINDINGS ARE SUMMARIZED IN TABLE I. BRIEFLY, BONDS AND LOC APPEAR TO OFFER THE ELEMENTS NECESSARY TO GIVE ASSURANCE THAT RECLAMATION WILL BE ACCOMPLISEHD. ALTHOUGH COD EQUALLY OFFER THE ASSURANCE, THEY WOULD SEEM TO BE AN UNECONOMIC CHOICE IN GENERAL. BOTH WITH SURETY COMPANIES AND BANKS, IN PLACE FEDERAL LAWS PROVIDE BACKUP ASSURANCE THAT EITHER ONE CAN HONOR ITS COMMITMENTS. VARIATIONS IN STATE LAWS ARE NOT OF CONCERN BECAUSE OF THE OVERLAY OF FEDERAL REGULATIONS.

REPORTS AND PUBLICATIONS
C. F. HAUSKNECHT AND R. A. ZISKIND. 1979. UPDATE OF FINANCIAL ALTERNATIVES FOR STABILIZATION AND RECLAMATION OF URANIUM MILL TAILINGS PILES. SAI-1-068-80-529
PUBLICATIONS ADDRESS
SCIENCE APPLICATIONS, INC.
1802 AVENUE OF THE STARS, SUITE 1205
LOS ANGELES, CA 90067

00001563

PROJECT TITLE
HYDROGEOCHEMICAL AND STREAM SEDIMENT RECONNAISSANCE BASIC DATA FOR RAPID CITY, NTMS QUADRANGLE, SOUTH DAKOTA
SOURCE NUMBER
2534
INVESTIGATOR(S)
P. H. RAHN
RESEARCH INSTITUTION
SOUTH DAKOTA SCHOOL OF MINES & TECH.
RAPID CITY, SD 57701
PRIMARY SPONSOR
U. S. DEPT. OF ENERGY
PRIMARY FUNDING AMOUNT
27,859
TIME FRAME
MAY 1979 TO NOV. 1979
LOCATION
SD - PENNINGTON CO.; RAPID CITY
ABSTRACT

650 STREAM SEDIMENT SAMPLES AND 650 WATER WELL SAMPLES WERE COLLECTED AND SENT TO UNION CARBIDE CORPORATION TO ASSESS URANIUM RESOURCES AND TO IDENTIFY FAVORABLE AREAS FOR DETAILED EXPLORATION.

00001564

PROJECT TITLE
EFFECTS OF LONG-TERM STORAGE ON THE FERTILITY AND BIOLOGICAL ACTIVITY OF TOPSOIL.
INVESTIGATOR(S)
PAUL C. SINGLETON
STEPHEN E. WILLIAMS
UNIV. OF WYOMING, DEPT. OF PLANT SCIENCE
UNIVERSITY STATION BOX 3354
LARAMIE, WY 82071
RESEARCH INSTITUTION
UNIV. OF WYOMING, INST. OF ENERGY & ENVIRONMENT
UNIV. STATION BOX 3965
LARAMIE, WY 82071
PRIMARY SPONSOR
UNIV. OF WYOMING, INST. OF ENERGY & ENVIRONMENT
UNIV. STATION BOX 3965
LARAMIE, WYOMING 82071
PRIMARY FUNDING AMOUNT
10,200
TIME FRAME
JAN. 1979 TO DEC. 1979
LOCATION
WY - ALBANY CO.; SHIRLEY BASIN
ABSTRACT

THE INFLUENCE OF AGE AND DEPTH OF STOCKPILED TOPSOIL ON FERTILITY AND BIOLOGICAL ACTIVITY WAS STUDIED ON

STOCKPILES AGED 1-12 YEARS LOCATED ON THE SHIRLEY BASIN URANIUM MINING DISTRICT OF SOUTH CENTRAL WYOMING. PHYSICAL CHEMICAL AND BIOLOGICAL PROPERTIES OF EACH SAMPLE WERE DETERMINED UNDER CONTROLLED LABORATORY CONDITIONS. THE AUTHORS MAKE SEVERAL RECOMMENDATIONS BASED ON THEIR RESULTS WITH THE CAUTION THAT UNDER THE GREENHOUSE EXPERIMENTAL CONDITIONS, TEMPERATURE AND WATER WERE NOT LIMITING FACTORS: 1) TOPSOIL SHOULD PROBABLY NOT BE STOCKPILED LONGER THAN 4 TO 5 YEARS. AFTER 5 YEARS THE ESTABLISHMENT OF BENEFICIAL MICROORGANISMS (MYCORRHIZAE) IS DECREASED; 2) IN RESPREAD TOPSOIL PHOSPHOROUS SHOULD BE CAREFULLY MANAGED. ADDITION OF PHOSPHOROUS TO DEFICIENT SOILS MAY BE BENEFICIAL IN THE SHORT TERM, BUT PHOSPHOROUS BECOMES FIXED AND UNAVAILABLE TO PLANTS WHEN SOIL PH IS HIGH, AND ALSO TENDS TO DECREASE MYCORRHIZAE ASSOCIATIONS. IN SOME PLANTS SUCH ASSOCIATIONS ARE IMPORTANT FOR WATER UPTAKE.

REPORTS AND PUBLICATIONS
FINAL REPORT

PUBLICATIONS ADDRESS
UNIV. OF WYOMING, INST. OF ENERGY & ENV.
UNIV. STATION BOX 3965
LARAMIE, WY 82071

00001565

PROJECT TITLE
HOME ENERGY ANALYSIS PROGRAM
INVESTIGATOR(S)
DAN HITCHCOCK
RESEARCH INSTITUTION
PACIFIC POWER & LIGHT CO.
920 S. W. 6TH AVE.
PORTLAND, OR 97204
PRIMARY SPONSOR
PACIFIC POWER & LIGHT CO.
920 S. W. 6TH AVE.
PORTLAND, OR 97204
PRIMARY FUNDING AMOUNT
NOT AVAILABLE
TIME FRAME
FEB. 1977 TO 9999
LOCATION
MT - WY - WA - OR - ID - CA
ABSTRACT

THIS PROGRAM IS PRIMARILY A CONSERVATION TOOL AND A MEANS WITH WHICH TO PROVIDE PACIFIC POWER & LIGHT WITH DATA CONCERNING RESIDENTIAL ELECTRICITY USE. P. P. & L. RETAINS 150 CONSULTANTS WHO PERFORM ENERGY AUDITS OF THEIR CUSTOMERS' ELECTRICALLY HEATED HOMES IN CALIFORNIA, IDAHO, MONTANA, OREGON, WASHINGTON, AND WYOMING. AS A RESULT OF THIS HOME ENERGY ANALYSIS, IT MAY BE RECOMMENDED THAT THE HOUSE UNDERGO WEATHERIZATION IMPROVEMENTS. THESE MAY BE FINANCED THROUGH P. P. & L. UNDER THEIR OPERATION INSULATION.

REPORTS AND PUBLICATIONS
IN-HOUSE REPORTS ONLY.

00001566

PROJECT TITLE
OPERATION INSULATION
INVESTIGATOR(S)
DAN HITCHCOCK
RESEARCH INSTITUTION
PACIFIC POWER & LIGHT CO.
920 S. W. 6TH AVE.
PORTLAND, OR 97204
PRIMARY SPONSOR
PACIFIC POWER & LIGHT CO.
920 S. W. 6TH AVE.
PORTLAND, OR 97204
PRIMARY FUNDING AMOUNT
2,000,000
TIME FRAME
AUG. 1978 TO 9999
LOCATION
MT - ID - OR - WA
ABSTRACT

THIS PROGRAM PROVIDES A METHOD OF FINANCING CONSERVATION AND WEATHERIZATION IMPROVEMENTS IN ELECTRICALLY HEATED HOMES RECOMMMENDED AS A RESULT OF PACIFIC POWER AND LIGHT'S HOME ENERGY ANALYSIS. IN IDAHO, MONTANA, OREGON AND WASHINGTON, THE FUNDS FOR THE IMPROVEMENTS ARE PROVIDED BY P. P. & L. AT NO INTEREST TO THE CONSUMER, AND THE COMPANY NEED NOT BE REIMBURSED UNTIL THE HOME IS SOLD OR OTHERWISE CHANGES HANDS.

00001567

PROJECT TITLE
RESIDENTIAL ENERGY CONSUMPTION SURVEY
SOURCE NUMBER
3993
INVESTIGATOR(S)
REUBEN COHEN
DAWN DAY
JOSEPH STEINBERG
RESEARCH INSTITUTION
RESPONSE ANALYSIS CORP.
P. O. BOX 158
PRINCETON, NJ 08540
PRIMARY SPONSOR
U. S. DEPT. OF ENERGY
ENERGY INFORMATION ADMINISTRATION
PRIMARY FUNDING AMOUNT
NOT AVAILABLE
TIME FRAME
SEPT. 1977 TO OCT. 1979
LOCATION
NATIONWIDE APPLICATION
ABSTRACT

THE OBJECTIVE OF THIS PROJECT IS A NATIONAL SURVEY OF HOUSEHOLDS WHICH INCLUDES INFORMATION ABOUT ENERGY CHARACTERISTICS OF HOMES AND CHARACTERISTICS OF HOUSEHOLDS. THE PROJECT ALSO INCLUDES INFORMATION ABOUT THE ACTUAL CONSUMPTION OF ELECTRICITY, FUEL OIL, UTILITY GAS, AND LPG.

00001568

PROJECT TITLE

ENERGY MANAGEMENT PROGRAM
INVESTIGATOR(S)
DENNIS SCWADS
RESEARCH INSTITUTION
PEABODY COAL CO.
301 N. MEMORIAL DR.
ST. LOUIS, MO 63102
PRIMARY SPONSOR
PEABODY COAL CO.
ST. LOUIS, MO.
PRIMARY FUNDING AMOUNT
NOT AVAILABLE
TIME FRAME
JAN. 1979 TO DEC. 1979
LOCATION
NATIONWIDE APPLICABILITY
ABSTRACT
THROUGH ENERGY MANAGEMENT (EM) TASK FORCES, A REPORTING PROCEDURE, AND ENERGY AUDITS AT THE PLANT LEVEL TO IDENTIFY WHERE AND HOW MUCH ENERGY IS BEING CONSUMED BY EACH MINE, PEABODY COAL HOPES TO REDUCE PRESENT ENERGY CONSUMPTION AND COSTS BY 10% IN 1979 WITHOUT AFFECTING PRODUCTION. ENERGY SAVING IDEAS ARE SOLICITED AT THE MINE AND CORPORATE LEVELS AND FROM INSIDE AS WELL AS OUTSIDE THE COMPANY. THE CORPORATE ENERGY TASK FORCE IS RESPONSIBLE FOR PLANNING AND IMPLEMENTING THE OVERALL EM PROGRAM.
REPORTS AND PUBLICATIONS
VARIOUS MAGAZINE ARTICLES

00001569

PROJECT TITLE
SUMMER INSTITUTE IN ENERGY DEVELOPMENT AND CONSERVATION
SOURCE NUMBER
26000634
INVESTIGATOR(S)
LAUREN S. MCKINSEY
RESEARCH INSTITUTION
MONTANA STATE UNIV., DEPT. OF POLITICAL SCIENCE
BOZEMAN, MT 59717
PRIMARY SPONSOR
U. S. DEPT. OF ENERGY
WASHINGTON, D. C.
SECONDARY SPONSOR
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION
MONTANA POWER CO.
PRIMARY FUNDING AMOUNT
20,603
SECONDARY FUNDING AMOUNT
3,538
TIME FRAME
JUNE 1980
LOCATION
NORTHERN GREAT PLAINS
ABSTRACT
MONTANA STATE UNIVERSITY HOSTED A TWO-WEEK SUMMER INSTITUTE ON ENERGY DEVELOPMENT AND CONSERVATION FOR COLLEGE AND COMMUNITY COLLEGE TEACHERS JUNE 15 TO 28 ON THE CAMPUS AT BOZEMAN. THE INSTITUTE FOCUSED ON CURRENT AND ALTERNATIVE U. S. ENERGY POLICY WITH A SPECIAL EMPHASIS ON WESTERN REGIONAL ISSUES, PARTICULARLY COAL DEVELOPMENT. PARTICIPANTS WERE EXPOSED TO A MULTIDISCIPLINARY ARRAY OF PERSPECTIVES ON SEVERAL MAJOR ALTERNATIVES FOR DEALING WITH AN IMPENDING PERIOD OF ENERGY SCARCITY AND RISING ENERGY COSTS. FUNDED PRIMARILY BY THE U. S. DEPARTMENT OF ENERGY, THE INSTITUTE IS INTENDED TO IMPART AN INTEGRATED UNDERSTANDING OF THE KEY ENERGY POLICY ISSUES FACING U. S. CITIZENS AND DECISION-MAKERS.
REPORTS AND PUBLICATIONS
NONE

00001570

PROJECT TITLE
BOILER FEEDWATER PREHEATER RETROFIT DESIGN
SOURCE NUMBER
2549
INVESTIGATOR(S)
DR. RICHARD L. PENDLETON
RESEARCH INSTITUTION
SOUTH DAKOTA SCHOOL OF MINES & TECH.
500 E. ST. JOSEPH STREET
RAPID CITY, SD 57701
PRIMARY SPONSOR
MIDWEST PMS, INC.
PRIMARY FUNDING AMOUNT
2,293
TIME FRAME
NOV. 1979 TO MAY 1980
LOCATION
SD - PENNINGTON CO.
ABSTRACT
THE PROJECT WILL INVESTIGATE THE FEASIBILITY OF USING PREHEATED WATER TO REDUCE BOILER ENERGY REQUIREMENTS; AND STUDY THE FEASIBILITY OF USING FLUE HEAT FOR PREHEATING BOILER WATER AND/OR WORKING OFFICE SPACE.

6.0 LAND USE.

00001571

PROJECT TITLE
BLM EASTERN MONTANA RANGE STUDY
SOURCE NUMBER
223-83-B
INVESTIGATOR(S)
ROBERT E. CARROLL
CHRIS PHELPS
RESEARCH INSTITUTION
ECON, INC.
1300 CEDAR
HELENA, MT
PRIMARY SPONSOR
BUREAU OF LAND MANAGEMENT
BLM - FEDERAL CENTER
DENVER, CO
PRIMARY FUNDING AMOUNT
50,000
TIME FRAME
JULY 1979 TO NOV. 1979
LOCATION
MT - CUSTER CO.
ABSTRACT
THIS PROJECT INVOLVES A RANGE SURVEY OF 400 SVIM TRANSECTS ON ONE MILLION ACRES NEAR MILES CITY, MT. THE SOIL AND VEGETATION DATA GATHERED WILL BE USED FOR FURTHER LAND USE PLANNING.
REPORTS AND PUBLICATIONS
PROJECT COMPLETION REPORT TO BLM

00001572

PROJECT TITLE
BLM PHOTO INTERPRETATION OF 5,000 SQUARE MILES NEAR MILES CITY, MT
SOURCE NUMBER
208-76-B
INVESTIGATOR(S)
ROBERT E. CARROLL
JIM RYAN
RESEARCH INSTITUTION
ECON, INC.
1300 CEDAR
HELENA, MT 59601
PRIMARY SPONSOR
U. S. BUREAU OF LAND MANAGEMENT
GRANITE TOWER
BILLINGS, MT 59101
PRIMARY FUNDING AMOUNT
35,900
TIME FRAME
OCT. 1978 TO SEPT. 1979
LOCATION
MT - CUSTER CO.
ABSTRACT
THIS PROJECT CONSISTS OF PHOTO INTERPRETING COLOR INFRARED FILM OF A 5000 SQUARE MILE AREA NEAR MILES CITY, MONTANA AND MAPPING THE VEGETATION, LAND USE, AND SEVERAL OTHER PARAMETERS.
REPORTS AND PUBLICATIONS
MAPS PRODUCED AT END OF PROJECT
PUBLICATIONS ADDRESS
U. S. BUREAU OF LAND MANAGEMENT
GRANITE TOWER
BILLINGS, MT 59101

7.0 OTHER

00001573

PROJECT TITLE
   MINERAL RESOURCES & RESEARCH INSTITUTE
SOURCE NUMBER
   2595
INVESTIGATOR(S)
   DR. M. C. FUERSTENAU
   DR. A. L. LISENBEE
   DR. J. D. ERICKSON
RESEARCH INSTITUTION
   SOUTH DAKOTA SCHOOL OF MINES & TECH.
   500 E. ST. JOSEPH ST.
   RAPID CITY, SD 57701
PRIMARY SPONSOR
   U. S. DEPT. OF INTERIOR, OFFICE OF SURFACE MINING
PRIMARY FUNDING AMOUNT
   160,000
TIME FRAME
   SEPT. 1979 TO SEPT. 1982
LOCATION
   SD - PENNINGTON CO.
ABSTRACT
   SCHOLARSHIP AND FELLOWSHIP FUNDS FOR METALLURGY, MINING, AND GEOLOGY GRADUATE STUDENTS AND POSTGRADUATES TO CONDUCT RESEARCH IN THE MINERAL INDUSTRIES.

00001574

PROJECT TITLE
   CITIZEN'S WORKSHOPS ON ENERGY AND THE ENVIRONMENT.
SOURCE NUMBER
   16000105
INVESTIGATOR(S)
   LARRY KIRKPATRICK
   JOHN AMEND
RESEARCH INSTITUTION
   MONTANA STATE UNIV.
   SCIENCE-MATH RESOURCE CENTER
   BOZEMAN, MT 59717
PRIMARY SPONSOR
   EXXON
SECONDARY SPONSOR
   ATLANTIC RICHFIELD CO.
   MONTANA POWER CO.
PRIMARY FUNDING AMOUNT
   1,000
SECONDARY FUNDING AMOUNT
   NOT AVAILABLE
TIME FRAME
   JAN. 1980 TO CONTINUING
LOCATION
   MT
ABSTRACT
   THE ENERGY-ENVIRONMENT SIMULATOR IS A SPECIALLY DESIGNED ANALOG COMPUTER THAT SIMULATES REAL-WORLD CONDITIONS. ENERGY RESOURCES, ENERGY DEMANDS, AND ENVIRONMENTAL CLOCK SPEEDS TIME BY AT THE RATE OF A CENTURY A MINUTE. PARTICIPANTS MUST MAKE DECISIONS ABOUT THE ALLOCATION OF ENERGY RESOURCES. THEY DO THIS BY OPERATING CONTROLS ON REMOTE PANELS IN RESPONSE TO THE CHANGING SITUATION. THE SEQUENCE CONTINUES UNTIL ALL THE FOSSIL FUELS ARE EXHAUSTED AND THE GAME ENDS. THE WORKSHOPS NOW BEING SCHEDULED HAVE AS MANY AS THREE PARTS: 1) A SLIDE ORIENTATION DEALING WITH THE BASIC FACTS RELATED TO ENERGY PROBLEMS; 2) A DECISION MAKING GAME PLAYED BY PARTICIPANTS USING THE SIMULATOR TO OBSERVE THE EFFECTS OF A WIDE RANGE OF DECISIONS INVOLVING ENERGY USE AND ENVIRONMENTAL PROTECTION; AND 3) A FEEDBACK SESSION WHERE QUESTIONS RAISED BY THE PROGRAM ARE DISCUSSED. THE IDEAL NUMBER OF PARTICIPANTS IS 25-35 WHICH GIVES EACH PERSON A CHANCE TO WORK WITH THE ENERGY-ENVIRONMENT SIMULATOR. THERE IS NO COST FOR PARTICIPATING IN WORKSHOPS. EACH WORKSHOP MAY LAST FROM 1 TO 3 HOURS, DEPENDING UPON THE TYPE OF PROGRAM AND THE AMOUNT OF TIME IT TAKES FOR THE DISCUSSION.
REPORTS AND PUBLICATIONS
   MONTHLY REPORTS STATING NUMBER OF PRESENTATIONS AND PARTICUPANTS, LOCATION, AND PRESENTER ARE SENT TO OAK RIDGE ASSOCIATED UNIVERSITIES.
PUBLICATIONS ADDRESS
   OAK RIDGE ASSOCIATED UNIVERSITIES
   OAK RIDGE, TENNESSEE

LOCATION-STATE INDEX

THE LOCATION-STATE INDEX CONTAINS STATE NAMES, UTILIZING THE STANDARD TWO-DIGIT ABBREVIATIONS.

OTHER LOCATION NAMES SUCH AS COUNTIES, RIVER BASINS AND GEOGRAPHIC FORMATIONS CAN BE FOUND IN THE SUBJECT INDEX.

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  AL
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  AZ
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  CA
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* GX
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  OR
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  WY
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